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ANNUAL REPORT

FEDERAL CIVIL DEFENSE ADMINISTRATION

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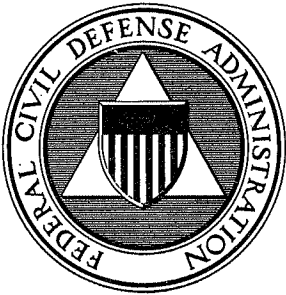
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ANNUAL REPORT for Fiscal Year 1957



United States

FEDERAL CIVIL DEFENSE ADMINISTRATION

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LETTER OF TRANSMITTAL

The Honorable, The President of the United States.

The Honorable, The President of the Senate.

The Honorable, The Speaker of the House.

I have the honor of transmitting to you the Seventh Annual Report of the Federal Civil Defense Administration. This report is submitted in conformity with section 406, Public Law 920, of the 81st Congress.

Respectfully,

LEO A. HOEGH,
Administrator.

FEDERAL CIVIL DEFENSE ADMINISTRATION ORGANIZATION CHART

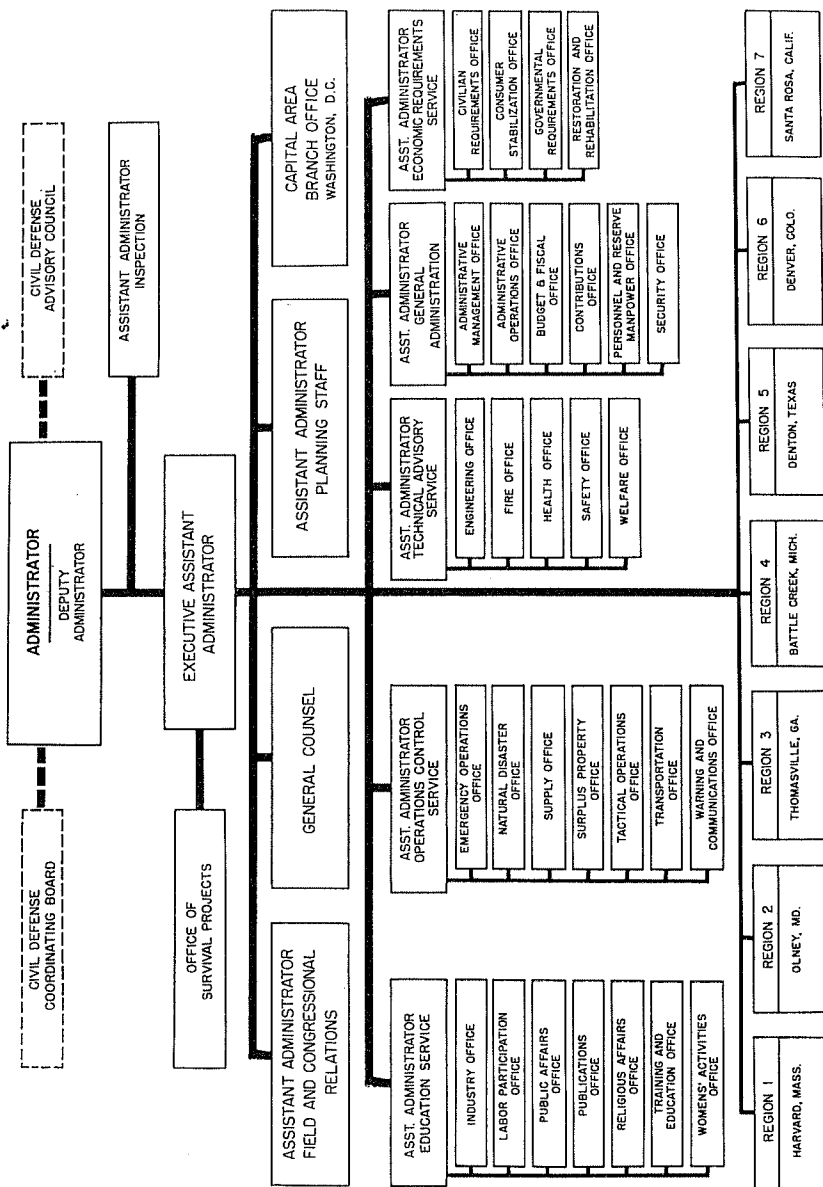


FIGURE 1.

FCDA REGIONS

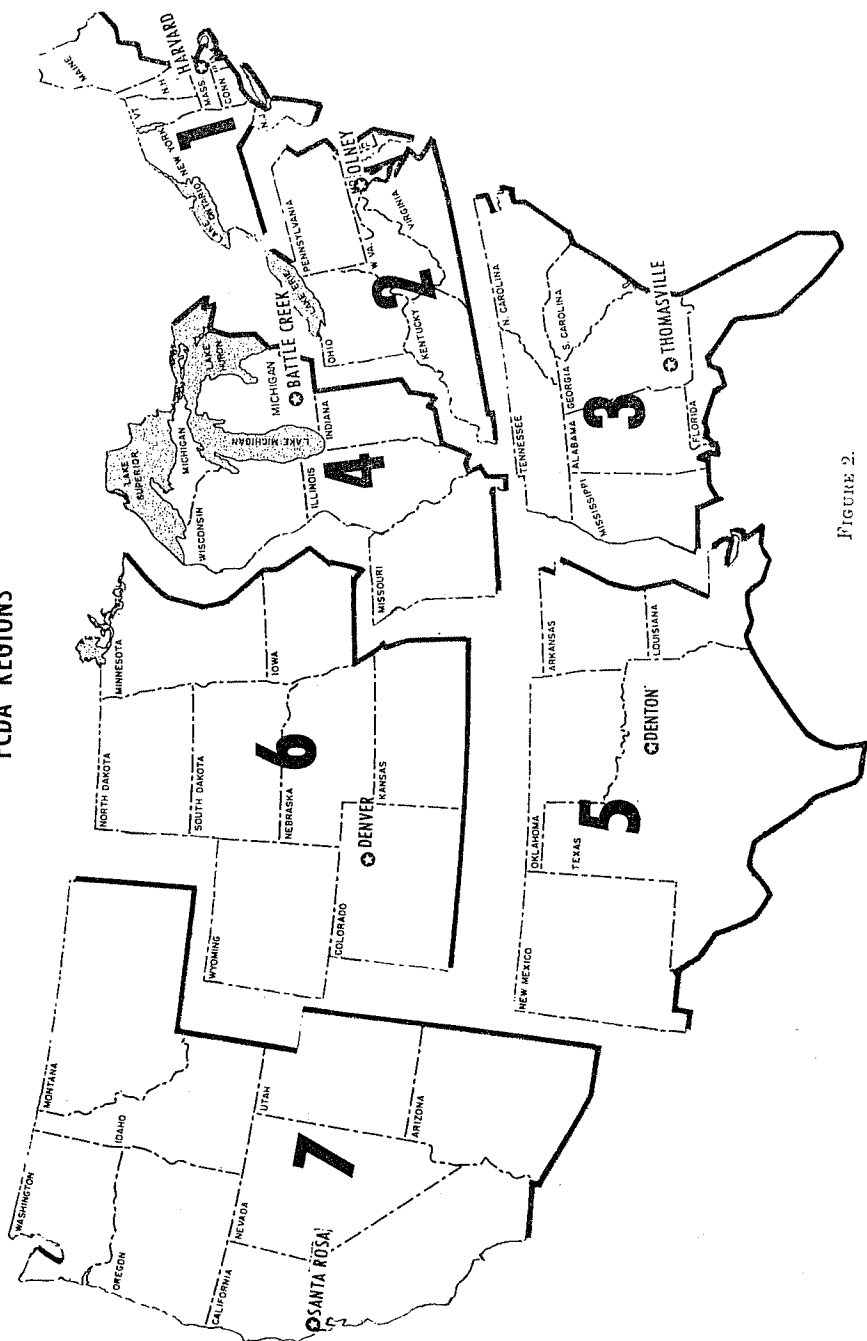


Figure 2.

○ REGIONAL OFFICE

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INTRODUCTION

The Federal Civil Defense Administration was guided by three major principles during fiscal year 1957:

1. Civil defense is part of the inherent responsibility of government at all levels to prepare for emergencies.
2. The destructive power of nuclear weapons demands that there be close cooperation among many governmental jurisdictions for effective civil defense operations.
3. Close cooperation between officials responsible for the military and the civil defense of the Nation is essential.

At least one of these principles was at the core of every major program conducted by the Agency during the year.

This annual report shows, in summary form, the progress made in civil defense throughout the Nation in fiscal year 1957.

By executive order, FCDA coordinates Federal assistance in major disasters under the Federal Disaster Act (Public Law 875, 81st Congress). Agency activities in this program are reflected in a separate report to Congress.

CIVIL DEFENSE PLANNING

A new planning concept of area vulnerability, the "Aiming Area Concept," was developed by FCDA during 1957. It is a more realistic basis for planning nonmilitary defensive measures in line with the destructive power of nuclear weapons. It recognizes the fact that many geographical areas in the United States contain multiple potential targets. Advisory Bulletin 214 defined an "aiming area" as a geographic area in which an enemy would probably place one or more nuclear weapons to assure the destruction of the target. The bulletin described the concept, specified the method of determining an assumed aiming area, and informed States and local agencies how to assure reasonable accuracy and currency of aiming area. Advisory Bulletin 215 stated FCDA policy on using aiming area assumptions in civil defense programs.

A command post exercise involving officials from all levels of government was held at FCDA Headquarters in March 1957. The exercise, Operation Sentinel, tested staff procedures and considered major operational problems which could result from a nuclear war against this country.

The exercise emphasized the contribution which can be made to total nonmilitary defense by all agencies and levels of government. It informed the participants on the general circumstances of an attack, and provided experience in integrating representatives of other Federal agencies into a general staff activity. The success of the exercise resulted in scheduling additional similar exercises.

Expansion of the Federal part of the *National Plan For Civil Defense Against Enemy Attack* was begun with particular emphasis on use of Federal resources and incorporation of the principles of the *Basic Responsibilities Paper* as the basis for a Federal operations plan.

The *Basic Responsibilities Paper*, outlining the roles of the Department of Defense, Office of Defense Mobilization, and FCDA, and an accompanying Memorandum of Understanding on the regional roles of ODM and FCDA in an emergency, was developed and distributed as Advisory Bulletin 210, dated March 1, 1957.

An operations plan for a hypothetical metropolitan target area was developed by FCDA and distributed to Government officials throughout the country. The plan, entitled *Battleground, USA*, shows how the principles and concepts of national civil defense planning can be applied at the local level.

Two-day conferences were held in all FCDA regions during the last two quarters of the fiscal year to brief Government personnel on the Federal delegations program, stimulate the use of delegations within the State and local civil defense structure, relate survival planning to the total civil defense program, discuss the *Basic Responsibilities Paper*, and introduce the program for continuity of State and local governments. Each conference was attended by approximately 75 representatives of Federal, State, and local governments.

PLANNING ASSUMPTIONS

FCDA planning assumptions issued September 4, 1956, in Advisory Bulletin 204, were in effect at the end of fiscal year 1957. They will be amended or replaced by new assumptions when changes of sufficient magnitude clearly indicate their inadequacy.

These assumptions are intended to cover several developmental phases of modern war. They start with the period when jet aircraft have not fully replaced conventional propeller-driven aircraft, and continue through the time when jet bombers may become sonic or slightly supersonic in speed. They anticipate the time when some intermediate-range ballistic missiles (IRBM) and intercontinental ballistic missiles (ICBM) become available.

The prime characteristic of this period is the possession by a potential enemy of the means of making nuclear weapons of megaton yield, and of delivering them on distant targets by piloted aircraft. Improvements in both offensive and defensive capabilities are virtually certain, but the strategy and tactics of civil defense are not likely to require major change until some new technological breakthrough is achieved.

Planning assumptions are sometimes misunderstood. Frequently they are taken for predictions. Planning assumptions are not predictions, nor are they based on incontrovertible facts that lead to only one conclusion. Planning assumptions fulfill a need for broad estimates in areas where civil defense must have a common base for planning. FCDA canvasses available intelligence and information and then establishes assumptions consistent with the estimates.

The following assumptions give a basis on which Federal, State, and local civil defense authorities can develop plans and set priorities of action:

I. *Basic Premises*

- A. It is accepted that the U. S. S. R. has the capability of attacking any target within the United States or its possessions.
- B. It is accepted that the U. S. S. R. has the capability of:
 - 1. Producing nuclear weapons, biological and chemical war-

- fare agents, as well as conventional incendiary and high explosive weapons;
2. Delivering these weapons by piloted aircraft, submarine-launched missiles or mines, and by clandestine means; and
 3. Supporting a large-scale war effort by technical and industrial skills and organizations.
- C. It is accepted that the U. S. S. R. is engaged in a major effort to develop both guided and ballistic missiles, including the ICBM.

II. *Type of Attack*

- A. It is assumed that the greatest weight of attack will be nuclear since the capability of a potential enemy may reach, in the next few years, a size which it could consider as exceeding the destructive tonnage necessary to win a war.
- B. It is assumed that if the United States is attacked the major effort will consist of delivering nuclear weapons upon bases of military retaliation and centers of population and industry.
 1. It is assumed that, until the intercontinental ballistic missile is available to an aggressor, principal reliance will be placed upon delivery by manned bombers with higher speed and performance, jet bombers tending to replace propeller-driven bombers.
 2. It is further assumed that, even when the intercontinental ballistic missile is available, a considerable weight of attack will continue to require delivery by manned aircraft.
 3. It is assumed that the time is distant when any nation will possess enough very long-range missiles to make possible the instant destruction of another nation.
- C. It is assumed that nuclear weapons will also be delivered by missiles or mines from submarines or surface vessels or by clandestine means, on a scale considerably less than that of the air attack. Their use, independent of an air attack, is not considered likely. Danger from naval attack decreases with distance from the coast.
- D. It is assumed that surface bursts will generally be employed since radioactive fallout from such bursts can increase casualties and interfere with military or civilian activity for days or weeks.
- E. It is assumed that, although nuclear weapons will be relied upon as the means of gaining the military decision, chemical warfare and biological warfare agents will be used against humans. Use of these weapons will be to increase confusion and impede defensive actions. The chances of using such

weapons are greater in subsequent attacks than in the initial blow. In any case, the threat is minor as compared with that of nuclear weapons.

- F. It is assumed that biological warfare agents will be employed against animals and crops, especially if long-term recuperative power gives indications of being a decisive factor. Use of these agents on any large scale is unlikely in the initial blow.
- G. It is assumed that psychological warfare and all-out propaganda efforts will accompany any attack in order to magnify and distort the real situation, to disrupt defense programs, impair essential production, and weaken our will to fight.
- H. It is assumed that, in addition to clandestine introduction of nuclear weapons, sabotage will be employed involving conventional means as well as biological and chemical weapons.
- I. It is assumed that the enemy's initial attack will be an attempted knockout blow placing primary reliance on nuclear weapons delivered by air. It is assumed that there will be subsequent attacks of varying intensity, employing in addition, other weapons and means of delivery.

III. *Targets*

- A. It is assumed that bases of military retaliation, other important military installations, and concentrations of population and industry, will be targets for nuclear attack.
- B. It is assumed that an aggressor will select targets from the following categories with priorities determined by its objectives at any particular time.
 - 1. Critical Target Areas as defined in "Target Areas for Civil Defense Purposes."
 - 2. Civil and military airfields with hard-surfaced runways of 7,000 feet or more, with major servicing and maintenance facilities.
 - 3. Major harbors, ports, and naval bases.
 - 4. AEC facilities.
 - 5. Major military command and control headquarters, such as the Pentagon, Continental Army Command, Naval Sea Frontiers, Strategic Air Command, Continental Air Command, and Tactical Air Command.
 - 6. Target Areas other than CTAs as defined in "Target Areas for Civil Defense Purposes," including all State capitals.
 - 7. Army and Marine Corps posts and stations housing divisions of the General Reserve and Fleet Marine Force.
 - 8. Major military service supply depots.

In many cases, a number of the above military and civilian categories will be found close together. For example New York City

meets the criteria of at least the following categories: (a) Critical Target Area; (b) Major Port; (c) Naval Base; (d) Airfields with hard-surfaced runways in excess of 7,000 feet.

- C. It is assumed that an aggressor may frequently choose to direct attack at any one, several, or all aiming points within a target area. Some targets contain only one probable aiming point. Most, however, either because they are large in area or because they are composed of a variety of military and civilian targets, contain a number of aiming points.
- D. It is assumed that all possible targets will not be attacked either in the initial blow or subsequently. The number of targets to be attacked or the pattern of attack cannot reasonably be predicted at any specific date.

IV. *Weapon Size and Physical Damage*

- A. It is assumed that the U. S. S. R. can produce nuclear weapons of varying yields ranging from few kilotons (thousands of tons) to megatons (millions of tons) of TNT equivalent.
- B. It is assumed that the U. S. S. R. stockpile of nuclear weapons is growing and that the number of megaton-yield weapons will, in the course of time, become large enough to permit employment of such weapons on progressively larger numbers of targets.
- C. It is assumed that, for the development of civil defense plan for (a) evacuation and reception; (b) relocation or dispersal; (c) shelter requirements and criteria, the nuclear weapons used will cause complete destruction (A-Zone) within a radius of 2 miles as a minimum, 5 miles as a maximum.
- D. It is assumed that bombing errors will occur and that the aiming point and actual ground zero will seldom exactly coincide. It is assumed, however, that the area of complete destruction will generally be of sufficient size to include such an aiming point in cases where the attacking aircraft reaches its bomb release line.
- E. It is assumed that any target hit by nuclear weapons will be substantially destroyed by the direct effects of blast, heat, and radiation. A number of targets will require more than one detonation because of (1) total area; (2) shape, particularly when one axis is considerably longer than another; (3) wide separation of rewarding aiming points.
- F. It is assumed that radioactive fallout resulting from surface bursts of weapons, whether on or off target, will spread downwind over considerable areas. Fallout from a large-scale attack could affect any portion of the United States.

- G. It is assumed that the U. S. S. R. can produce a considerable variety of biological and chemical warfare agents and can deliver them on the U. S. It is assumed, however, that large-scale delivery of such weapons will be less accurate and less damaging than the delivery of nuclear weapons by a similar number of carriers.

V. *Warning Time*

- A. It is assumed that a civil defense alert of an initial mass attack by manned aircraft will be received on the Canadian border and the Atlantic, Pacific, and Gulf coasts, from 1 to 3 hours before targets within these boundaries will be under attack. It is expected that intelligence on the probable time attacking planes will take to reach specific targets will be available to civil defense through the Civil Air Defense Warning System.¹
- B. It is assumed that interior targets will have 1 to 3 hours additional between the time civil defense alert is received and the time when interior targets are under attack from manned aircraft.
- C. No definite assumptions can be made as to the availability of strategic warning. However, plans should also include the contingency of a strategic warning, announced to the Nation by the President, before any direct attack on this country had been initiated. It might be measured in hours or even days, and would make possible more careful and detailed preparations for an actual alert. We can never be sure that there will be strategic warning. Emphasis should be placed on maximum utilization of tactical warning since the probability of such warning is much higher.

CRITICAL TARGETS AND TARGET AREAS

Possible targets of an enemy attack are designated on the basis of eight criteria (see Planning Assumptions, section III), including major concentrations of population and industry. Based on the population and industry criteria, there were 72 Critical Target Areas and 116 Target Areas in continental United States at the end of the year. One change was made in the Target Area designations in the last year: the Santa Barbara, Calif., Standard Metropolitan Area was established as a Target Area.

The Target Area Classification included all the Standard Metropolitan Areas as defined by the Federal Committee on Standard Metropolitan Areas, and all State capitals not already included as Standard

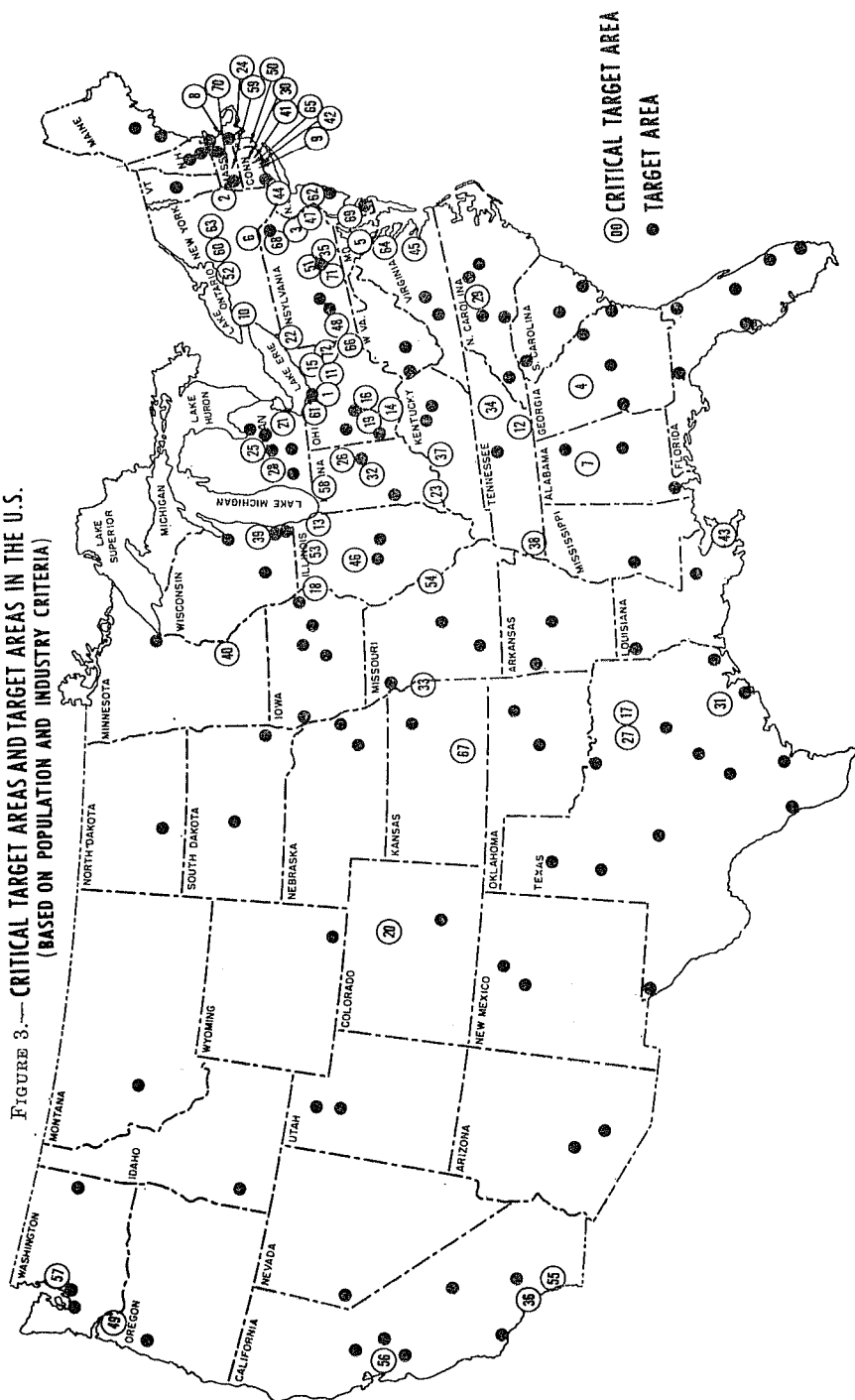
¹ Civil Air Defense Warning System was redesigned later in fiscal year 1957, and designated the National Warning System.

ADDENDUM

following should be added to the section on "Warning Time" (page 10 in the Planning Assumptions as reported in the Federal Civil Defense Administration Annual Report for fiscal year 1957:

"In the latter part of 1957 the tactical warning time was reduced to 0 to 1 hour, and planning was initiated on tactical warning time being eventually reduced to 0 to ½ hour."

FIGURE 3.—CRITICAL TARGET AREAS AND TARGET AREAS IN THE U.S.
(BASED ON POPULATION AND INDUSTRY CRITERIA)



Metropolitan Areas. Critical Target Areas are those Standard Metropolitan Areas having 40,000 or more manufacturing employees, as reported by the U. S. Department of Labor. Washington, D. C., is included because of its importance as the Nation's capital.

The latest census figures on population show 69,371,575 persons living in the 72 Critical Target Areas. Each Critical Target Area has at least one central city of 50,000 or more inhabitants. Over half of the Nation's population is located in the 188 Target Areas in continental United States, and between 40 and 45 percent of the total population is in the 72 Critical Target Areas. The large concentrations of population and industry are mainly located in the New England, Middle Atlantic, and Great Lakes areas. FCDA Region 1, including New England, New York, and New Jersey, has more than 18 percent of the Nation's population. It covers about 26 percent of the total Target Area population and nearly one-third of the Critical Target Area population.

CRITICAL TARGET AREAS AND TARGET AREAS IN THE U. S.

FIGURE 4.—POPULATION DISTRIBUTION

*Target Areas and Critical Target Areas**

FCDA Regions and States	Total population		Total target area population***		Critical target area population	
	Number	Percent	Number	Percent	Number	Percent
Total.....	**170, 378, 000	100.0000	88, 382, 059	100.0000	69, 371, 575	100.0000
Region 1.....	31, 310, 000	18.3765	23, 142, 315	26.1844	21, 967, 891	31.6526
Connecticut.....	2, 232, 000	1.3100	1, 393, 966	1.5772	1, 197, 943	1.7269
Maine.....	910, 000	.5341	203, 823	.2306		
Massachusetts.....	4, 812, 000	2.8243	3, 840, 138	4.3449	3, 382, 221	4.8755
New Hampshire.....	560, 000	.3287	151, 392	.1713		
New Jersey.....	5, 403, 000	3.1711	4, 350, 493	4.9224	4, 218, 094	6.0804
New York.....	16, 195, 000	9.5052	12, 457, 974	14.0956	12, 457, 974	17.9583
Rhode Island.....	828, 000	.4860	701, 659	.7939	701, 659	1.0116
Vermont.....	370, 000	.2171	42, 870	.0485		
Region 2.....	32, 791, 000	19.2459	19, 566, 186	22.1382	16, 896, 599	24.3567
Delaware.....	402, 000	.2359	256, 749	.2905	218, 879	.3155
District of Columbia.....	866, 000	.5083	859, 000	.9719	859, 000	1.2383
Kentucky.....	3, 017, 000	1.7708	872, 408	.9871	695, 780	1.0030
Maryland.....	2, 812, 000	1.6504	1, 928, 373	2.1819	1, 928, 373	2.7798
Ohio.....	9, 096, 000	5.3387	5, 384, 086	6.0918	4, 839, 762	6.9766
Pennsylvania.....	10, 964, 000	6.4350	8, 136, 638	9.2062	7, 156, 131	10.3156
Virginia.....	3, 651, 000	2.1429	1, 490, 274	1.6862	1, 028, 817	1.4831
West Virginia.....	1, 983, 000	1.1639	638, 660	.7226	169, 857	.2448
Region 3.....	22, 983, 000	13.4892	6, 728, 303	7.6127	2, 510, 605	3.6191
Alabama.....	3, 135, 000	1.8400	1, 093, 254	1.2030	558, 928	.8057
Florida.....	3, 770, 000	2.2127	1, 489, 484	1.6853		
Georgia.....	3, 712, 000	2.1786	1, 268, 444	1.4239	732, 867	1.0565
Mississippi.....	2, 124, 000	1.2466	142, 164	.1608		
North Carolina.....	4, 423, 000	2.5960	896, 736	1.0146	191, 057	.2754
South Carolina.....	2, 353, 000	1.3810	528, 710	.5982		
Tennessee.....	3, 466, 000	2.0343	1, 349, 511	1.5269	1, 027, 753	1.4815

See footnotes at end of table.

FIGURE 4.—POPULATION DISTRIBUTION—Continued

Target Areas and Critical Target Areas*—Continued

FODA region and State	Total population		Total target area population***		Critical target area population	
	Number	Percent	Number	Percent	Number	Percent
Region 4.....	29,380,000	17.2439	16,151,311	18.2744	14,339,691	20.6708
Illinois.....	9,432,000	5.5359	6,339,004	7.1723	6,108,667	8.8057
Indiana.....	4,413,000	2.5901	1,756,828	1.9877	1,561,416	2.2608
Michigan.....	7,516,000	4.4113	4,225,001	4.7804	3,575,452	5.1540
Missouri.....	4,255,000	2.4974	2,270,369	2.5688	2,033,256	2.9310
Wisconsin.....	3,764,000	2.2092	1,560,109	1.7652	1,060,900	1.5293
Region 5.....	16,796,000	9.8580	6,090,698	6.8913	2,832,052	4.0824
Arkansas.....	1,815,000	1.0653	260,887	.2952	.....	.....
Louisiana.....	3,004,000	1.7631	1,153,922	1.3056	779,000	1.1229
New Mexico.....	815,000	.4783	183,826	.2080	.....	.....
Oklahoma.....	2,237,000	1.3130	577,038	.6529	.....	.....
Texas.....	8,925,000	5.2333	3,915,025	4.4296	2,053,052	2.9595
Region 6.....	12,736,000	7.4750	3,877,577	4.3373	2,231,430	3.2166
Colorado.....	1,612,000	.9461	654,020	.7400	563,832	.8128
Iowa.....	2,692,000	1.5800	776,366	.8784	100,698	.1451
Kansas.....	2,103,000	1.2343	555,809	.6289	450,391	.6492
Minnesota.....	3,241,000	1.9022	1,322,571	1.4964	1,116,509	1.6095
Nebraska.....	1,414,000	.8299	416,455	.4712	.....	.....
North Dakota.....	657,000	.3856	25,673	.0291	.....	.....
South Dakota.....	696,000	.4085	79,021	.0894	.....	.....
Wyoming.....	321,000	.1884	47,662	.0539	.....	.....
Region 7.....	21,197,000	12.4410	11,772,450	13.3200	8,603,307	12.4018
Arizona.....	1,057,000	.6204	472,986	.5352	.....	.....
California.....	13,433,000	7.8841	8,760,346	9.9119	7,165,486	10.3291
Idaho.....	625,000	.3668	70,649	.0799	.....	.....
Montana.....	638,000	.3745	24,540	.0278	.....	.....
Nevada.....	247,000	.1450	4,172	.0047	.....	.....
Oregon.....	1,718,000	1.0083	720,923	.8157	619,522	.8931
Utah.....	812,000	.4766	358,214	.4053	.....	.....
Washington.....	2,667,000	1.5653	1,360,620	1.5395	818,299	1.1796
Territories and possessions.....	3,187,000	1.8705	1,053,219	1.1917	.....	.....
Alaska.....	209,000	.1227	5,956	.0068	.....	.....
American Samoa.....	**19,000	.0111	1,586	.0018	.....	.....
Canal Zone.....	53,000	.0311	.....	.....	.....	.....
Guam.....	**59,000	.0346	1,330	.0015	.....	.....
Hawaii.....	590,000	.3287	353,020	.3994	.....	.....
Puerto Rico.....	2,263,000	1.3282	679,858	.7692	.....	.....
Virgin Islands.....	24,000	.0141	11,469	.0130	.....	.....

*Source: U. S. Bureau of the Census. State population figures are estimates as of July 1, 1956. For the Territories and possessions (except American Samoa and Guam, for which 1950 figures were used) estimates are as of July 1, 1955. Data for target area and critical target area population are as of 1950, except that Census estimates have been incorporated for Houston, Milwaukee, St. Louis, and Washington, D. C., as of January 1, 1955, and for New Orleans and Providence as of July 1, 1956. Figures do not add to exact totals shown because of rounding or the incorporation of rounded figures.

**Exclusive of certain small trust territories and possessions having a total population of 57,266 as of 1950.

***Includes critical target area population.

The following were the Critical Target Areas, based on population and industry criteria, at the end of the fiscal year. They are listed with reference numbers to use with the map, "Critical Target Areas and Target Areas in the U. S."

CRITICAL TARGET AREAS

Map No.

1. Akron, Ohio
2. Albany—Schenectady—Troy, N. Y.
3. Allentown—Bethlehem—Easton, Pa. (New Jersey)
4. Atlanta, Ga.
5. Baltimore, Md.
6. Binghamton, N. Y.
7. Birmingham, Ala.
8. Boston, Mass.
9. Bridgeport, Conn.
10. Buffalo, N. Y.
11. Canton, Ohio
12. Chattanooga, Tenn. (Georgia)
13. Chicago, Ill. (Indiana)
14. Cincinnati, Ohio (Kentucky)
15. Cleveland, Ohio
16. Columbus, Ohio
17. Dallas, Tex.
18. Davenport, Iowa—Rock Island—Moline, Ill.
19. Dayton, Ohio
20. Denver, Colo.
21. Detroit, Mich.
22. Erie, Pa.
23. Evansville, Ind. (Kentucky)
24. Fall River—New Bedford, Mass. (Rhode Island)
25. Flint, Mich.
26. Fort Wayne, Ind.
27. Fort Worth, Tex.
28. Grand Rapids, Mich.
29. Greensboro—High Point, N. C.
30. Hartford, Conn.
31. Houston, Tex.
32. Indianapolis, Ind.
33. Kansas City, Mo. (Kansas)
34. Knoxville, Tenn.
35. Lancaster, Pa.
36. Los Angeles—Long Beach, Calif.
37. Louisville, Ky. (Indiana)

Map No.

38. Memphis, Tenn.
39. Milwaukee, Wis.
40. Minneapolis—St. Paul, Minn.
41. New Britain—Bristol, Conn.
42. New Haven, Conn.
43. New Orleans, La.
44. New York—N. E. New Jersey
45. Norfolk—Portsmouth—Newport News, Va.
46. Peoria, Ill.
47. Philadelphia, Pa. (New Jersey)
48. Pittsburgh, Pa.
49. Portland, Oreg. (Washington)
50. Providence, R. I. (Massachusetts)
51. Reading, Pa.
52. Rochester, N. Y.
53. Rockford, Ill.
54. St. Louis, Mo. (Illinois)
55. San Diego, Calif.
56. San Francisco—Oakland, Calif.
57. Seattle, Wash.
58. South Bend, Ind.
59. Springfield—Holyoke, Mass. (Connecticut)
60. Syracuse, N. Y.
61. Toledo, Ohio
62. Trenton, N. J.
63. Utica—Rome, N. Y.
64. Washington, D. C. (Maryland—Virginia)
65. Waterbury, Conn.
66. Wheeling, W. Va.—Steubenville, Ohio
67. Wichita, Kans.
68. Wilkes-Barre—Hazleton, Pa.
69. Wilmington, Del. (New Jersey)
70. Worcester, Mass.
71. York, Pa.
72. Youngstown, Ohio (Pennsylvania)

MILITARY-CIVIL DEFENSE RELATIONSHIPS

Both the Department of Defense and the Federal Civil Defense Administration intensified efforts during fiscal year 1957 to improve coordination of their respective roles and operations in natural disasters and in emergencies caused by enemy action. Early in the year the Department of Defense revised its basic directive relating to the responsibilities of the armed services for civil defense and

other domestic emergencies to reflect a stronger and more positive role. Other directives issued during the year provided for formal military service representation on the FCDA Regional Civil Defense Operations Boards and on the Regional Mobilization Committees of the Office of Defense Mobilization. Additional directives specified accounting procedures and reports to be used by the armed services in connection with military assistance in major disasters.

In January 1957, the Department of Defense sponsored meetings attended by FCDA and military personnel at the six Continental Army Commands to determine the extent to which the new directives were being implemented, and of identifying any further problems involved.

A conference of senior military commanders was sponsored by FCDA at Battle Creek in May. In attendance were representatives from the Departments of Defense, Army, Navy, and Air Force, and the Joint Chiefs of Staff, the Strategic Air Command, the Continental Air Defense Command, the Continental Army Command, the Continental Air Command, and the Eastern and Western Sea Frontiers. The discussions resulted in a better appreciation of the total national defense problem by both military and civil defense officials. Plans were developed for a series of similar meetings with military commanders at regional offices.

TARGET AREAS*

In addition to the Critical Target Areas, there were 116 Target Areas in continental United States at the end of the fiscal year, as follows:

Albuquerque, N. Mex.	Charlotte, N. C.
Altoona, Pa.	Cheyenne, Wyo.
Amarillo, Tex.	Columbia, S. C.
Asheville, N. C.	Columbus, Ga. (Alabama)
Atlantic City, N. J.	Concord, N. H.
Augusta, Ga. (South Carolina)	Corpus Christi, Tex.
Augusta, Maine	Decatur, Ill.
Austin, Tex.	Des Moines, Iowa
Baton Rouge, La.	Dover, Del.
Bay City, Mich.	Dubuque, Iowa
Beaumont-Port Arthur, Tex.	Duluth, Minn.-Superior, Wis.
Bismarck, N. Dak.	Durham, N. C.
Boise, Idaho	El Paso, Tex.
Brockton, Mass.	Fort Smith, Ark.
Carson City, Nev.	Frankfort, Ky.
Cedar Rapids, Iowa	Fresno, Calif.
Charleston, S. C.	Gadsden, Ala.
Charleston, W. Va.	Galveston, Tex.

*List based on population and industry criteria.

Green Bay, Wis.	Portland, Maine
Greenville, S. C.	Pueblo, Colo.
Hamilton-Middletown, Ohio	Racine, Wis.
Harrisburg, Pa.	Raleigh, N. C.
Helena, Mont.	Richmond, Va.
Huntington, W. Va.-Ashland, Ky.	Roanoke, Va.
(Ohio)	Sacramento, Calif.
Jackson, Mich.	Saginaw, Mich.
Jackson, Miss.	St. Joseph, Mo.
Jacksonville, Fla.	Salem, Oreg.
Jefferson City, Mo.	Salt Lake City, Utah
Johnstown, Pa.	San Angelo, Tex.
Kalamazoo, Mich.	San Antonio, Tex.
Kenosha, Wis.	San Bernardino-Riverside-Ontario, Calif.
Lansing, Mich.	San Jose, Calif.
Laredo, Tex.	Santa Barbara, Calif.
Lawrence, Mass.	Santa Fe, N. Mex.
Lexington, Ky.	Savannah, Ga.
Lima, Ohio	Scranton, Pa.
Lincoln, Nebr.	Shreveport, La.
Little Rock-North Little Rock, Ark.	Sioux City, Iowa
Lorain-Elyria, Ohio	Sioux Falls, S. Dak.
Lowell, Mass.	Spokane, Wash.
Lubbock, Tex.	Springfield, Ill.
Macon, Ga.	Springfield, Mo.
Madison, Wis.	Springfield, Ohio
Manchester, N. H.	Stamford-Norwalk, Conn.
Miami, Fla.	Stockton, Calif.
Mobile, Ala.	Tacoma, Wash.
Montgomery, Ala.	Tallahassee, Fla.
Montpelier, Vt.	Tampa-St. Petersburg, Fla.
Muncie, Ind.	Terre Haute, Ind.
Nashville, Tenn.	Topeka, Kans.
Ogden, Utah	Tucson, Ariz.
Oklahoma City, Okla.	Tulsa, Okla.
Olympia, Wash.	Waco, Tex.
Omaha, Nebr. (Iowa)	Waterloo, Iowa
Orlando, Fla.	West Palm Beach, Fla.
Phoenix, Ariz.	Wichita Falls, Tex.
Pierre, S. Dak.	Winston-Salem, N. C.
Pittsfield, Mass.	

FEDERAL AGENCY UTILIZATION PROGRAM

The Federal Civil Defense Act of 1950 authorizes the FCDA Administrator to "delegate, with the approval of the President, to the several departments and agencies of the Federal Government appropriate civil defense responsibilities, and review and coordinate the civil defense activities of the departments and agencies with each other and with the activities of the States and neighboring countries." Under this authority the Administrator has issued five delegations, as follows:

Delegation No. 1, approved by the President July 14, 1954, delegated to the Secretary of Health, Education, and Welfare 10 specific duties dealing principally with health and welfare problems under attack conditions, development of civil defense training materials for incorporation in the curricula of schools and colleges, and the development of shelter and protective measures for educational institutions, hospitals, and other health facilities.

Delegation No. 2, approved September 8, 1954, assigned duties to several agencies:

The Secretary of Agriculture was delegated three responsibilities dealing with control or eradication of diseases, pests, or chemical agents used in biological or chemical warfare against animals or crops, the planning of emergency food supplies, and the prevention and control of fires caused by enemy attack in rural areas.

The Secretary of Commerce was delegated responsibilities for designation of civil defense emergency highways, coordination of interstate and State civil defense highway systems, emergency clearance and restoration of highways, streets, and bridges in damaged areas, traffic-control problems during an emergency, and the provision of data and assistance to the States in analyzing potential target and support areas.

The Secretary of Labor was delegated responsibilities for planning emergency use of the labor force, estimating survivors by occupational and social characteristics, coordination of the nationwide employment service offices for determining manpower requirements and for recruiting purposes, developing methods of compensation for authorized workers in an emergency, the provision of compensation payments for the injury or death of authorized workers during an emergency, and a plan for provision of temporary aid to workers during periods of idleness resulting from enemy action.

The Attorney General was given a delegation for guiding the States in the protection of penal institutions and the control and utilization of prisoners and facilities during an emergency.

The Housing and Home Finance Administrator was delegated responsibilities for developing protective standards for new housing and temporary shelter in existing housing, provision of temporary emergency housing in support of attacked areas, and plans for the emergency restoration of housing and community facilities coming under the Agency's jurisdiction.

Delegation No. 3, approved August 13, 1955, gave further responsibilities to the Secretary of Commerce, namely, to plan for needed highway improvements to meet civil defense requirements, and to develop and issue improved forecasts of radiological fallout patterns. This delegation also gave to the Secretary of the Interior the task of planning and providing adequate fuel supplies for attacked areas and reception centers.

Delegation No. 4, approved by the President November 22, 1955, gave the Secretary of the Interior the responsibility for emergency restoration of electric utility service to attacked areas, and for provision of adequate electric utility service to support areas.

Delegation No. 5, approved by the President September 1, 1956, gave the Secretary of Health, Education, and Welfare the additional responsibilities for the conduct of a program of donation of Federal surplus personal property for civil defense purposes (including research).

The delegate agencies were allocated a total of \$3,559,000 for delegation programs in fiscal year 1957 out of a total appropriation of \$4 million. Allocation of funds from FCDA to the various agencies for fiscal year 1956 and fiscal year 1957 is shown in the following table:

CIVIL DEFENSE FUNDS OF DELEGATE AGENCIES

Delegate agency	Transferred by FCDA for fiscal year 1956	Obligated during fiscal year 1956	Transferred by FCDA for fiscal year 1957	Obligated during fiscal year 1957
Department of Agriculture.....			\$307, 000	\$256, 909
Department of Commerce.....	\$190, 000	\$163, 813	417, 000	365, 368
Department of Health, Education, and Welfare.....	1, 240, 000	1, 214, 794	2, 195, 000	2, 127, 733
Department of the Interior.....	20, 000	10, 328	55, 000	49, 669
Department of Justice.....			60, 000	39, 336
Department of Labor.....	64, 397	64, 252	375, 000	373, 990
Housing and Home Finance Agency.....	25, 000	24, 853	150, 000	59, 808
Total.....	1, 539, 397	1, 478, 040	3, 559, 000	3, 272, 813

Regional civil defense operations boards were established in all regions representing the various delegate agencies.

PROGRAM PROGRESS OF DELEGATE AGENCIES

Department of Agriculture

Agricultural Research Service.—Regional meetings were held during the year to discuss major insect and plant disease problems. *Proceedings of the 1956 Regional Meetings on Foreign Animal Diseases* was distributed to Federal and State regulatory personnel, veterinary colleges, and veterinary departments of land-grant colleges. Progress reports were made to the United States Public Health Service's biennial conference at Atlanta on the development of rapid diagnostic procedures, insect control measures, epidemiological techniques, and the problems of diseases of animals transmissible to the human being. Plans were completed for meetings on radiological defense as it applies to agriculture and animal-derived foods.

Agricultural Marketing Service and Commodity Stabilization Service.—A newly-appointed field staff of the Food Distribution Division devoted full time to the program of providing technical guidance to the States on emergency food problems. Conferences were held with State civil defense officials in the majority of States.

Forest Service.—Technicians assigned to fire defense planning worked with State civil defense officials and State survival projects in developing plans for rural fire defense.

Department of Commerce

A brochure, entitled *U. S. Department of Commerce and Civil Defense*, outlining the program delegations to the Department, was published during the year.

Bureau of Public Roads.—Basic evacuation data were developed by the Bureau in cooperation with State highway departments and highway user groups, and a brochure, entitled *Highway Needs for Civil Defense*, was published.

U. S. Weather Bureau.—The Weather Bureau staff at FCDA National Headquarters was increased to permit round-the-clock operations effective March 15, 1957. The Weather Bureau support program comprises 20 positions, 1 consultant at each of the 7 FCDA regions, 7 positions in Washington, D. C., and 6 at FCDA National Headquarters.

The Bureau continued the fallout forecast program inaugurated June 1, 1955, with a network of 33 stations reporting twice daily. The network was expanded several times to the total of 22 stations located in areas of industrial and population concentration, reporting 4 times daily, and in addition, 46 other stations reporting twice daily for a total of 68 United States stations, and 8 Canadian, 2 Alaskan, and 1 Hawaiian station reporting twice daily. The fallout forecasts

indicate the direction and distance fallout would be carried from ground zero in the event of an attack. Advisory bulletins have been issued for direction and guidance of Government personnel in the construction of fallout plots using the coded data transmitted over the U. S. Government Teletype Service "C" at 0741, 0926, 1941, and 2126 GMT to approximately 500 Weather Bureau, military, and FCDA offices.

The regional office and national office staffs provided FCDA with consultant services for day-to-day operations and for test exercises as required. Weather advisory service and briefings were provided to the FCDA Natural Disaster Office and to the FCDA Administrator on flooding, tornadoes, hurricanes, and other severe weather, as required. The Weather Bureau Hydrologic Services *Flood Manual*, a collation of data relating river stages to known flood damage, was prepared and distributed to the field. Consultants continued in their efforts to encourage greater use of fallout forecast messages at State and local levels.

Fallout probability research for 51 selected stations was completed in September 1956. A further refinement, the "Hot Line" Probability Study, was completed in June 1957. Investigations to find new or improved methods and techniques to increase the height and accuracy of upper wind measurements continued.

Area Development Office.—The special projects staff of the Area Development Office started a project of assembling, plotting on maps, locating by grid coordinates, and reproducing in appropriate form existing industrial locations and other pertinent data for aiming area determinations.

Department of Health, Education, and Welfare

Public Health Service.—A Special Weapons Protection Branch was established during the year to develop guidance for existing and proposed hospitals on incorporating protective construction features.

Key public health personnel in seven States were given the general course "Public Health in Civil Defense." The strength of the Commissioned Reserve Pool of professional personnel was increased to 2,909 during the year.

The Public Health Service Sanitary Engineering and Communicable Disease Centers completed 40 instructor training courses for State and local health department personnel.

The Public Health Service continued research at its sanitary engineering and communicable disease control research centers in Cincinnati, Ohio, and Atlanta, Ga. Considerable progress was made in developing rapid methods of detecting and identifying biological

warfare and chemical warfare agents in air, food, and water by infra-red spectrophotometric and fluorescent antibody techniques.

Visits were made to various water supply systems throughout the country to develop methods of keeping up-to-date figures on water-supply facilities for bomb-damage assessment.

Experimental data useful in protecting water supplies were obtained by batch coagulation tests. Studies in methods for determining vulnerability of food supplies to contamination also were continued during the year.

Public Health Service technical assistance to State health departments was increased by placing civil defense coordinators in 8 of the 9 Department of Health, Education, and Welfare regional offices, and by assigning civil defense consultants to 17 State health departments.

Food and Drug Administration.—Training of State and city food and drug regulatory officers was completed in all regions. Training courses also were developed for food industry officials.

Comprehensive reports were issued by the Food and Drug Administration on earlier studies made in connection with the 1955 continental atomic test program. Progress was made in developing an adequate laboratory facility to continue biological warfare studies.

Communicable Disease Control and Biological Warfare Defense.—Research continued during the fiscal year through the following programs:

1. Effects of biological warfare on food and drugs.
2. Use of non-Federal laboratories across the Nation to provide a biological warfare defense capability.
3. Immunization and chemoprophylaxis investigation.
4. Evaluation and application of biological warfare defense sampling devices.
5. Rapid identification of biological warfare agents.
6. Development of methods for the detection of biological agents in water supplies.
7. Studies in milk and food protection and decontamination.

Social Security Administration (Bureau of Public Assistance).—Forty-three agreements were signed with the States and Territories, providing a basis for planning emergency financial assistance and clothing programs, and authority to operate them in an emergency. A manual on these programs was prepared for early release.

Office of Education.—The three pilot centers in California, Connecticut, and Michigan continued the program of developing methods and materials designed to introduce civil defense education in the schools. Staff associates conducted nuclear science demonstrations and laboratory exercises, and exhibited teaching aids to a number of science teacher institutes. Demands increased for this service.

Office of Field Administration (Office of Surplus Property Utilization).—Policies governing the operation of the donation of surplus program for civil defense purposes were issued as part of the *Surplus Property Manual*. Forty-seven State plans for surplus property utilization were received. Forty-three of these were reviewed and placed in operation. A booklet, entitled *Acquiring Surplus Property for Health, Education, or Civil Defense*, was prepared and widely distributed.

Department of Interior

Office of Minerals Mobilization.—Conferences were held with State authorities, and nominations were made for the appointment of members of Local Emergency Solid Fuel Committees.

Office of Oil and Gas.—An outline plan for handling petroleum and gas during a national emergency was developed and widely accepted at the local level.

Office of Water and Power Development.—The United States was divided into 16 electric supply areas. Appointment of voluntary officials with alternates progressed satisfactorily. Preparation of an emergency operations handbook started during the year.

Department of Justice

Bureau of Prisons.—A memorandum of understanding was agreed to by FCDA and the Bureau of Prisons. An emergency planning staff was created to supervise carrying out the delegated responsibilities. This staff conducted briefings in a number of correctional institutions. A manual was prepared, reviewed and later published under the title, *An Institutional Planning Guide for Disaster Defense*.

Department of Labor

A pilot study for creating civil defense task forces from the labor force was started at Grand Rapids, Mich., with cooperation from all those involved.

Staff members were selected and assigned to the bomb-damage assessment group to work on manpower aspects of preattack and postattack defense planning.

Plans were completed for development of a handbook for State Employment Security Agencies in preattack planning and postattack guidance. A manual of occupational titles, codes, and definitions was developed for FCDA review and approval. A field studies unit was established in New York City to study and test the state of readiness of the Department's field activities.

A study of the legislative history of bills introduced into Congress providing for death and disability benefits for civil defense workers was completed. A previously developed plan for income maintenance was revised and entitled "The Federal Emergency Unemployment

Payments Plan." Basic responsibilities of the Department under this item of the delegation were reviewed and drafts prepared for FCDA approval.

Housing and Home Finance Agency

A memorandum of understanding with FCDA was signed on the provision of temporary emergency housing in areas subjected to enemy attack, and the emergency restoration of essential housing and other community facilities for which the Agency normally has legal responsibility. It provides for a field staff to be recruited and assigned. Constituent agencies were allocated funds and directed to develop plans for emergency lodging and restoration, and to provide advice and guidance to States and localities in this field.

INTERNATIONAL COOPERATION

Greater cooperation among nations is an essential element in the program of national security. During fiscal year 1957 FCDA participation in international activities resulted in developing better non-military defensive techniques for the United States and the nations of the free world.

During the fiscal year FCDA staff college training facilities were made available to civil defense officials and industrial leaders of other countries. Thirty-six officials from 15 countries visited the United States to study civil defense operations and planning procedures. These visitors included Chancellor Adenauer, Minister of Interior Gerhard Schroder, Civil Defense Director Walter Bargatzky, all of Germany, and the French Minister of the Interior Maxime Roux. Belgium, China, Denmark, Great Britain, Greece, Indonesia, India, Italy, Japan, The Netherlands, Portugal, Sweden, and Thailand had representatives attending briefings on civil defense at the National Headquarters in Battle Creek.

More than 500 requests were received from other nations for public information publications, leaflets, films, training kits, and technical information. (The United States regularly receives civil defense publications and materials from 12 other nations as a result of the FCDA liaison program.)

FCDA and the Department of State made arrangements with the Atomic Energy Commission for 31 foreign government officials to visit the Nevada Test Site during Operation Plumbbob. Officials from Canada, France, Germany, Greece, Italy, The Netherlands, Spain, Sweden, Turkey, and the United Kingdom participated in the FCDA observer program.

In addition to the foreign-observer program, arrangements were made by FCDA and the Department of State with the Atomic Energy Commission to have French and West German governments' shelters tested at the Test Site. The French and West German governments financed the construction of their shelters and provided their own instrumentation. FCDA placed United States instruments in the shelters to obtain additional information.

In 1955, the North Atlantic Council of the North Atlantic Treaty Organization established the Senior Civil Emergency Planning Committee to advise the Council on civil emergency planning, and to guide all groups engaged in this activity. Representatives of FCDA

attended regular meetings of this committee as a part of the United States delegation which also included representatives of the Department of State, Department of Defense, International Cooperation Administration, and the Office of Defense Mobilization.

The North Atlantic Treaty Organization Civil Defense Committee, composed of the civil defense directors of NATO member nations, met twice. The United States was represented by the FCDA Administrator. At the suggestion of the United States a new working party was established to coordinate mutual assistance during peacetime emergencies resulting from natural disasters. Details for processing requests for assistance from NATO nations were worked on during the year.

FCDA participated in 11 meetings of other working parties of the Civil Defense Committee. Technical problems involving fire fighting, shelters, scientific matters, attack warning, and public utilities were discussed. The United States served as host to the Fire Fighting Working Party at Miami, Fla., in November 1956.

The North Atlantic Council established a medical committee in 1954 to study assessment of casualties, stockpiling of medical supplies, export and import requirements, and hospital facilities. Because FCDA was directly concerned with many of the problems studied by the medical committee, it was requested by the Department of State to provide the United States delegate for the meetings held during fiscal year 1957.

A Joint United States-Canada Civil Defense Committee was established on March 27, 1951, to develop mutual civil defense arrangements. Close cooperation between the United States and Canada in both civil defense operational planning and technical development continued during the fiscal year. Through the work of the Committee, joint planning has developed so that, under civil defense emergency conditions, the border between the two countries would, for all practical purposes, become nonexistent. A joint secretariat has been established to conduct the daily business of the Committee, and serve as a channel for the flow of civil defense information between the two countries. This secretariat encourages and assists direct cooperation between contiguous States and Canadian Provinces, and between border municipalities. Operating agreements have been concluded on most essential operational problems. The primary work of the Committee now is the implementation of these agreements through national planning. To assist the Committee, 11 joint working groups have been established to meet regularly on specific technical problems. The working groups are:

Working Group I.....	Medical and Special Weapons Defense
Working Group II.....	Welfare
Working Group III.....	Training and Education
Working Group IV.....	Radiological Prediction, Monitoring and Decontamination
Working Group V.....	Warning and Communications
Working Group VI.....	Transportation
Working Group VII.....	Emergency Operations
Working Group VIII.....	Public Information
Working Group IX.....	Survival Planning
Working Group X.....	Reduction of Urban Vulnerability and Economic Requirements of Post- attack Recovery
Working Group XI.....	Engineering

These groups serve as the focal point for the exchange of civil defense technical and professional papers between the United States and Canada. The United States is represented on the committee by the FCDA Administrator, who serves as United States chairman, and representatives of the Departments of Justice, State, and Treasury. Canadian representatives include the minister of the National Department of Health and Welfare, his deputy, and Federal Coordinator for Civil Defense, and officials of the Department of External Affairs, and the Canadian Joint Staff. The full Committee has one meeting each year. The fiscal year 1957 meeting was held in the United States on October 18-19, 1956.

The Canadian Government cooperated in Operation Alert 1956. The Canadian exercise was conducted in phases, and was coordinated as much as possible with the exercise conducted in the United States. The two nations exchanged personnel and joined in the operation of an emergency communications headquarters.

RESEARCH AND PROGRAM DEVELOPMENT

The research program conducted by FCDA during fiscal year 1957 emphasized participation in the Continental Nuclear Test Weapons program; radiological defense research; the further development and refinement of a bomb damage assessment system; and investigations of a variety of warning, alerting, and communications systems. Research also was conducted on biomedical problems; biological and chemical warfare defense; training programs, and the social and organizational effects of disaster.

The research program is undertaken by arrangements with other Federal agencies, and contractual arrangements with specialized research organizations and universities.

RESEARCH PROJECTS

The following 16 research projects were completed during fiscal year 1957:

1. *Airborne Radiation Study*, Atomic Energy Commission.—This survey, to test certain aerial monitoring instruments and procedures, was carried out jointly with the Atomic Energy Commission and the Geological Survey of the Department of Interior at the Nevada Test Site.

2. *Attack Surveillance*, Stanford Research Institute.—The objectives were: (1) to provide an attack surveillance system to communicate attack intelligence, such as the location of ground zero, size of bomb, height of burst, and weather information to computer centers, and (2) to determine communication requirements for transmitting computer results. The contract was modified to include: (1) a feasibility study of a surveillance system based on available knowledge, (2) a study of the type of circuits required between detection instruments and feed-in point, and (3) a feasibility study of the use of Rocket-sonde equipment for upper-air readings to meet damage-assessment requirements.

3. *Climatological Survey*, United States Weather Bureau, Department of Commerce.—A comprehensive climatological study of wind-direction probabilities. The survey was made to aid in planning evacuation studies, determining the location of stockpile sites, and to assist in developing well-founded operational plans. Geographical probabilities of wind direction by seasons and areas around potential targets in the United States, its Territories, and southern Canada are shown in the final report.

4. *Audio-Sound System*, DuKane Corp.—A study of public communication systems to develop a practical system, using simple and inexpensive amplifiers and other components that are portable and more rugged than currently available commercial models.

5. *Prototype CONELRAD Alert Receivers*, Philco Corp.—The development of three prototype radio receivers with alarm mechanisms that are actuated by varying sequences of carrier-break and carrier-on, based on CONELRAD alert procedures.

6. *Prototype 2,000 C. P. S. System*, International Business Machines Corp.—Development of an internal warning system to generate and receive a civil defense alert signal. Receivers and necessary transmitting equipment were furnished FCDA as a part of the contract. Field tests were carried out by the Armour Research Foundation and the Niagara Mohawk Power Corp. under separate contracts.

7. *Anti-Blast Valve Closures*, A. D. Little, Inc.—The development, design, and fabrication of prototypes of anti-blast closures for ventilation openings in protective structures. The prototype devices were shipped to the Nevada Test Site for testing.

8. *Shelter Design*, American Machine & Foundry Co.—Design of a dome-type shelter for testing at the Nevada Test Site.

9. *Milwaukee Study*, Wilbur Smith & Associates.—Analysis of shelter availability and requirements in the Milwaukee area.

10. *Studies of Certain CD Requirements in the Milwaukee Metropolitan Area*, National Opinion Research Center, University of Chicago.—A study of emergency communications requirements and public information channels as related to survival planning in the Milwaukee, Wis., metropolitan area.

11. *Methods for Collecting Survival Plan Information*, Public Information Service.—Research to develop methods of, or procedures for, securing information needed for operational evacuation planning as it relates to providing emergency welfare care for evacuees.

12. *Command and Control and Training Studies*, John Diebold & Associates, Inc. (Griffenhagen).—Research to establish guidelines to be used in the preparation of a detailed operational survival plan in any metropolitan zone covering generally the areas of command and control, and training.

13. *Effectiveness of Civil Defense Information Media*, Group Attitudes, Inc.—Interviews with State and local officials, and with selected influence groups, to determine the effectiveness of civil defense public information programs.

14. *Evaluation of Local Civil Defense Training Effectiveness*, Applied Psychological Services.—The study was designed to: (1) develop instruments and procedures for the evaluation of civil defense training, (2) report on the structure, function, and organization of civil defense

training in critical target and support areas of FCDA Regions I and II, and (3) develop an objective checklist which can be used to evaluate training.

15. *Public Attitude Survey*, Survey Research Center, University of Mich.—A nationwide survey of current public knowledge and attitude concerning civil defense.

16. *Urban Population Studies Part VIII*, U. S. Department of Commerce, Bureau of the Census.—Studies to estimate the distribution of daytime and resident population in six metropolitan areas (Houston, St. Louis, Milwaukee, Washington, D. C., New Orleans, and Rhode Island) and to develop a standard method for estimating daytime population.

The following research projects were in process at the end of fiscal year 1957:

1. *Blood Research*, National Academy of Sciences.—Funds for this project have been transferred to the Department of Defense to support a continuing contract relating to blood research, plasma, volume expanders, and nasogastric feedings.

2. *Plasma Sterilization and Long-Term Preservation of Blood*, National Academy of Sciences.—An amended contract authorizes further research in the sterilization of blood plasma for the elimination of the transmission of jaundice, and for research on the long-term preservation of blood.

3. *Bomb Damage Assessment and Reporting*, Stanford Research Institute.—The purpose of this program is the development of a national bomb damage assessment system that will provide quick estimates of attack damage to the population, and medical and other resources. Much data collecting and computer machine programing work has been completed. Among other things, the contract calls for: (1) the extension and improvement of the system, both in data and machine processing techniques, (2) the construction of mathematical models to assist FCDA in determining the best courses of action with respect to evacuation, shelter, and the reduction of urban vulnerability, and (3) advice and assistance to FCDA in the integration of the Damage Assessment System into its organizational structure and operating procedures.

4. *Design and Testing of a Dual Purpose Shelter*, Ammann & Whitney.—Design work was completed on a dual purpose shelter and parking garage capable of withstanding 30 pounds per square inch overpressure.

5. *Design and Testing of a Dome Type Shelter*, American Machine & Foundry Co.—Design construction supervision and testing of a reinforced concrete dome-type shelter.

6. *Estimation of Fallout Casualties*, Dr. Rudolph Langer.—This study is intended to provide a rapid method of securing emergency estimates of fallout casualties.

7. *Ionizing Radiation Study*, National Bureau of Standards.—The objectives of this program are to furnish FCDA consulting and advisory services, make a study of shielding requirements in makeshift and prepared shelters, make instrumentation studies, and develop safety standards for people in fallout areas.

8. *National Radiological Defense Laboratory*.—The objectives of this program are to study the diagnosis and treatment of radiation injury, biological effects of deeply penetrating radiation, internal radiation hazards, and surface effects of radiation from nuclear weapons.

9. *Aerial Survey Instruments*, Atomic Energy Commission.—The purpose of the agreement with the New York Operations Office of AEC is to develop and test prototype aerial survey instruments to measure fallout.

10. *Radiological Defense System*, University of California.—This is a study aimed at the development of a national radiological defense system, including intensive fact-finding, review, analysis, and recommendations for further research on such items as fallout patterns and predictions, shelter, decontamination techniques, radiological instrumentation, fallout reporting systems, mass radiation injury diagnosis and treatment, and biomedical effects of radiation.

11. *National Emergency Alarm Repeater (NEAR) System*, Midwest Research Institute.—Development of the NEAR system of internal warning by superimposing a harmonic voltage signal on electrical power distribution systems.

12. *Warning and Communication Studies*, Gautney & Jones Co.—A study, in Maryland and Pennsylvania, of the effectiveness of existing communication facilities from the Air Division through the warning points, and to the local level.

13. *Overall Warning and Communications Study*, Melpar Corp.—An appraisal of FCDA's warning and communications facilities, methods, and procedures, with recommendations for improvements.

14. *Internal Warning Devices*, Armour Research Foundation.—An overall study of powerline warning systems making use of superimposed signals over a wide range of frequencies. A comparative study was made of internal warning devices presently developed or being considered. Preliminary design studies were made of a warning system based on the optimum superimposed signal.

15. *Home-A-Lert*, Allis Chalmers Co.—The development, production, and testing of an internal warning system. Items for develop-

ment and testing included signal generating equipment, wavetrapp equipment, and signal receivers.

16. *Telephone Signalling System*, Armour Research Foundation.—A prototype alarm system is being developed for installation in a telephone central office which is representative of those in metropolitan areas. A pilot test installation of the proposed system is also to be conducted.

17. *Biological and Chemical Warfare Defense*, Army Chemical Corps.—The primary objective of this program is to develop inexpensive civilian masks for protection against inhalation of biological, chemical, and radiological warfare agents. Tests of the masks developed are underway.

18. *Local Civil Defense Organization Effectiveness*, Michigan State University.—A comprehensive study of types of civil defense organizations currently operative in States, cities, counties, and metropolitan complexes.

19. *Evaluation of FCDA Training Courses*, Applied Psychological Services.—A study designed to evaluate systematically FCDA training programs at the Staff College, the Olney Training Center, and courses given by FCDA traveling teams.

20. *Fire Research Committee*, National Academy of Sciences.—The functions of the committee are to explore all means and methods for preventing, controlling, and extinguishing large-scale fires. Emphasis is on new and novel procedures and methods with the objective of recommending a basic program in this field for implementation by FCDA.

21. *Civil Defense Atomic Tests*.—See "Continental Nuclear Test Program."

22. *Disaster Research Program*, National Academy of Sciences.—Sponsorship of research into the effects of disaster on the individuals and organizations concerned. Initial research concentrates on the effects of Hurricane Audrey in Louisiana. The Committee on Disaster Studies of the National Academy of Sciences and its technical staff also will advise and cooperate with FCDA on other relevant social science research problems which confront the Agency.

15. *Scientific Advisory Committee*, National Academy of Sciences.—This committee was established by the National Academy of Sciences in 1954 at the request of FCDA. Committee members serve without pay, and supply advice to FCDA on technical and scientific problems.

CONTINENTAL NUCLEAR TEST PROGRAM

The Federal Civil Defense Administration, cooperating with the Atomic Energy Commission and the Department of Defense, has participated in every continental nuclear test series since 1951.

All civil defense participation is designed to meet one or more of the following general objectives:

1. Develop basic technical information.
2. Field test equipment, instruments, or structures.
3. Train specialists in various phases of nuclear defense activities with emphasis on radiological defense.
4. Indoctrinate key State and local officials with civil defense problems and responsibilities.
5. Assist in carrying out the FCDA responsibility for public education on nuclear weapons effects.

In the "Plumbbob" series, which began in May 1957, FCDA placed the major emphasis on tests of mass shelters and radiological defense. Four programs, which included 22 projects, were conducted by FCDA personnel and contractors. In addition, FCDA was cosponsor with the Department of Defense, Atomic Energy Commission, and the Food and Drug Administration for nine other projects. The FCDA dome shelter projects were conducted in the closest cooperation with related Department of Defense programs.

Instead of a single "open shot," FCDA conducted observer programs for State and local officials in 10 of the "Plumbbob" shots. One program was reserved for technical personnel who had an engineering interest in FCDA shelters and structures tests. In all, more than 250 persons, including 30 observers from 10 foreign nations, witnessed nuclear detonations at the invitation of FCDA.

In addition to its own test activities, FCDA assists industries in the development and execution of test projects. More than 200 industries have participated, with activities ranging from providing the material to conducting major tests.

In Operation Plumbbob, civil defense shelters designed by foreign governments were tested at the Nevada Test Site for the first time. Through the cooperation of the Atomic Energy Commission, and the Departments of State and Defense, FCDA was able to grant requests from the French and West German governments to test their shelter designs. Actual conduct of the tests was by an American contractor acting as an agent for the governments concerned.

The following is a brief description of the FCDA nuclear weapon test programs conducted during 1957:

1. *Program 30—Shelters for Civil Populations.*—This program was established to test design criteria for both public and private shelters. In addition to the FCDA shelters tested, the foreign shelter projects were included in this program. Structures tested were 3 dome-type test structures, a mass shelter door, an underground garage-mass shelter, 3 family shelters, a bank vault, 5 French structures (2 shelters and 3 entrance ways), and 9 West German shelters.

2. *Program 31—Structures, Equipment, Devices, and Components.*—This program was a test of certain structures, components, and equipment, parts of which would be used in shelters and other public buildings. Included also were tests of devices designed to determine the location and size of a nuclear detonation.

3. *Program 35—Radiological Defense Technology.*—This program was designed to provide information on certain aspects of radiation decontamination in residential areas, radiological defense monitoring techniques, and evaluation of FCDA radiological survey instruments.

4. *Program 36—Radiological Defense Operations.*—This program provided training and education in radiological defense operations to selected participants who were trained at Government expense. The participants were field trained in areas contaminated with fallout at the Nevada Test Site. This had the advantage of enabling the personnel to work in contaminated fields not available in the laboratories or in existing training schools. Although most of the activity took place in fiscal year 1958, a brief pilot course was conducted in June 1957 to set the guidelines for the program. In addition to the training aspects of this program, a documentary motion picture was produced for use at radiological training schools throughout the country.

FCDA also participated in test projects sponsored by other Government agencies. These included:

1. *Biomedical Program.*—This program supported by the Atomic Energy Commission, Department of Defense, and FCDA, was a study of atomic blast effects, including missile and dust studies, on biological specimens.

2. *Aerial Monitoring.*—The New York Operations Office of the Atomic Energy Commission, under contract to FCDA, developed an aerial monitoring instrument, and field tested the equipment in contaminated areas of the Nevada Test Site.

FCDA also provided financial assistance, personnel, and instruments to the University of California to determine the extent of the radioactive contamination in the areas surrounding the Test Site.

3. *Food and Drug Studies.*—In this program, FCDA provided administrative support to the Food and Drug Administration which conducted studies at the Nevada Test Site on fallout effects and decontamination of food, water, and raw agricultural products. In addition, a study was conducted on vulnerability to blast effects of emergency stockpile-type vacuum bottles.

4. *Water Decontamination.*—FCDA provided personnel and financial assistance to a project designed to investigate field expedients for the removal of radioactive contamination from water. This project was conducted by the Engineering Research and Development Laboratories, Department of Defense.

RESOURCES AND REQUIREMENTS PROGRAM

An Economic Requirements Service was established by FCDA on July 26, 1956. The mission is to insure meeting essential civilian requirements, reestablish and maintain the physical facilities essential to the economy, and insure the conservation, distribution, and use of vital resources in the event of enemy attack.

A paper entitled "Guidelines for State and Local Emergency Economic Operations," containing advice on price, salary, wage, and rent controls, and consumer rationing, was developed by FCDA and ODM, and distributed to the States and appropriate Federal officials.

An FCDA Civilian Resources and Requirements Program describing the FCDA estimate of postattack requirements, supply goals, anticipated deficiencies, and programs proposed to overcome these deficiencies, was submitted to ODM.

An interagency committee on food stockpiling completed work on a report entitled "Report and Analysis of the Need for Strategic Stockpiling for Foods in the United States and its Territories and in Other Countries." This report was submitted to ODM, and subsequently issued. A series of Selective Service System regional conferences were held to discuss the part which the Selective Service System might play in assisting FCDA in meeting emergency manpower requirements.

CONTINUITY OF STATE AND LOCAL GOVERNMENT

During the latter part of fiscal year 1957, a program for the continuity of State and local government was developed with the advice and assistance of State and local officials and such organizations as the United States Civil Defense Council, National Association of State and Territorial Civil Defense Directors, Council of State Governments, National Association of County Officials, American Municipal Association, United States Conference of Mayors, International City Managers Association, and the American Society for Public Administration.

The purpose of the program is: (a) to preserve leadership and authority, (b) to preserve State and local government, and (c) to strengthen State and local government for emergency action. It is based on the concept that civil defense is an inherent responsibility of government at all levels.

The program applies in varying degrees to all duly constituted governments regardless of size or location; namely, States, Territories, counties, townships, and municipalities, including school and special districts. It also applies to the executive, legislative, and judicial branches of government.

Four specific objectives constitute the program:

1. Establishment of emergency lines of succession for top executives, legislators, the judiciary, and other key personnel.
2. Preservation of essential records.
3. Establishment of emergency locations for government operations.
4. Full use of all government personnel, facilities, and equipment for emergency operations.

The first objective, *the establishment of lines of succession*, applies to all States, Territories, and local governments. Lines of succession should be established for top elective and appointive officials of the executive branch, all members of legislative bodies and the judiciary, and other personnel who are vital to emergency operations.

Objective number two, *preservation of essential records*, is aimed at preserving records required to protect the rights and interests of individuals, facilitate the conduct of State and local emergency functions which protect the rights and interests of governments, and help reestablish normal governmental functions.

Records required to protect the rights and interests of individuals include vital statistics records, land and tax records, license registers, and papers of incorporation. Records required to conduct emergency operations include utility systems maps, locations of emergency supplies and equipment, emergency operations plans and procedures, lists of succession, and lists of regular and auxiliary personnel. Records required to protect the rights and interests of governments and to reestablish normal governmental functions include constitutions and charters, statutes and ordinances, court records, official proceedings, and financial records.

The third objective, *the establishment of emergency locations for government operations*, is designed to provide safer facilities in which executive officials, members of the judiciary and the legislative bodies of State and local governments can carry on their emergency responsibilities. This objective is applicable only to governments having direct emergency operating responsibilities, including States, counties, and municipalities, regardless of location.

Objective number four, *the full use of all government personnel, facilities, and equipment for emergency operations*, is designed to strengthen State and local governments for emergency operations, and applies to all such governments.

The continuity of government program is considered a basic foundation for all other civil defense efforts, and will receive top priority within the Agency during fiscal year 1958.

RADIOLOGICAL DEFENSE

The problem of radioactive fallout touched virtually every Agency program during the fiscal year. Although the year ended with the goal of a national capability for radiological defense yet to be reached, much was accomplished in dealing with this problem, one of the most serious to face the Nation since the start of the atomic era.

The Agency engaged in a considerable amount of radiological research during the year. This information is reported in the "Research Projects," and the "Continental Nuclear Test Program" sections of this chapter. Training in radiological defense techniques also was expanded during the year. This is reported in the chapter on "Training and Public Information."

The instrumentation program in radiological defense was improved during the year. FCDA placed procurement orders for about 148,000 survey instruments and 69,000 dosimeters and associated equipment valued at more than \$3,750,000. A total of 7,782 survey instruments, 5,676 dosimeters, and 91 training kits was distributed on loan or grant during the year.

The United States Weather Bureau fallout forecast program, which was started in June 1955, was expanded. The number of weather stations making fallout forecasts was increased from 52 to 68 in the United States, and 8 stations of the Canadian Meteorological Service began to provide fallout forecasts on a cooperative basis.

The forecasts, available to any community in the Nation, are based on observations of wind direction and speed taken at 76 observatories in the United States and Canada, and 2 each in Alaska and Hawaii. Most of the observatories prepared and transmitted fallout forecasts twice a day, and on June 1, 1957, 22 observatories began to transmit the forecasts four times daily. Although the forecasts are coded, a fallout plot can be completed in less than 5 minutes.

WEATHER OBSERVATORIES REPORTING FALLOUT FORECASTS

Region 1

Maine

Caribou

Portland

Massachusetts

Nantucket

New York

*Albany

*Buffalo

*New York

Region 2

Dist. of Columbia

*Washington, D. C.

Ohio

*Dayton

Region 2—Continued

Pennsylvania

Philadelphia

*Pittsburgh

Virginia

*Norfolk

Region 3

Alabama

*Montgomery

Florida

Jacksonville

Miami

Tampa

Georgia

Athens

Region 3—Continued

Mississippi
 Jackson
 North Carolina
 Greensboro
 Hatteras
 South Carolina
 Charleston
 Tennessee
 Nashville

Region 4

Illinois
 Chicago
 *Peoria
 Michigan
 *Flint
 *Sault Ste. Marie
 Missouri
 Columbia
 Wisconsin
 Green Bay

Region 5

Arkansas
 Little Rock
 Louisiana
 Burrwood
 Lake Charles
 *Shreveport
 New Mexico
 Albuquerque
 Oklahoma
 Oklahoma City
 Texas
 *Amarillo
 Brownsville
 El Paso
 *Fort Worth
 Midland
 San Antonio

Region 6

Colorado
 *Denver
 Grand Junction
 Kansas
 Dodge City
 *Topeka
 Minnesota
 International Falls
 St. Cloud
 Nebraska
 North Platte
 Omaha

Region 6—Continued

North Dakota
 Bismarck
 South Dakota
 Rapid City
 Wyoming
 Lander

Region 7

Arizona
 Phoenix
 *Tucson
 California
 *Los Angeles
 *Oakland
 San Diego
 Santa Maria

Idaho

Boise

Montana

Glasgow
 Great Falls

Nevada

Ely
 Las Vegas
 Winnemucca

Oregon

Medford
 *Salem

Utah

*Salt Lake City

Washington

*Seattle
 Spokane
 Tatoosh Island

Canadian Stations

Province

Alberta

Edmonton

British Columbia

Port Hardy
 Prince George

Manitoba

The Pas

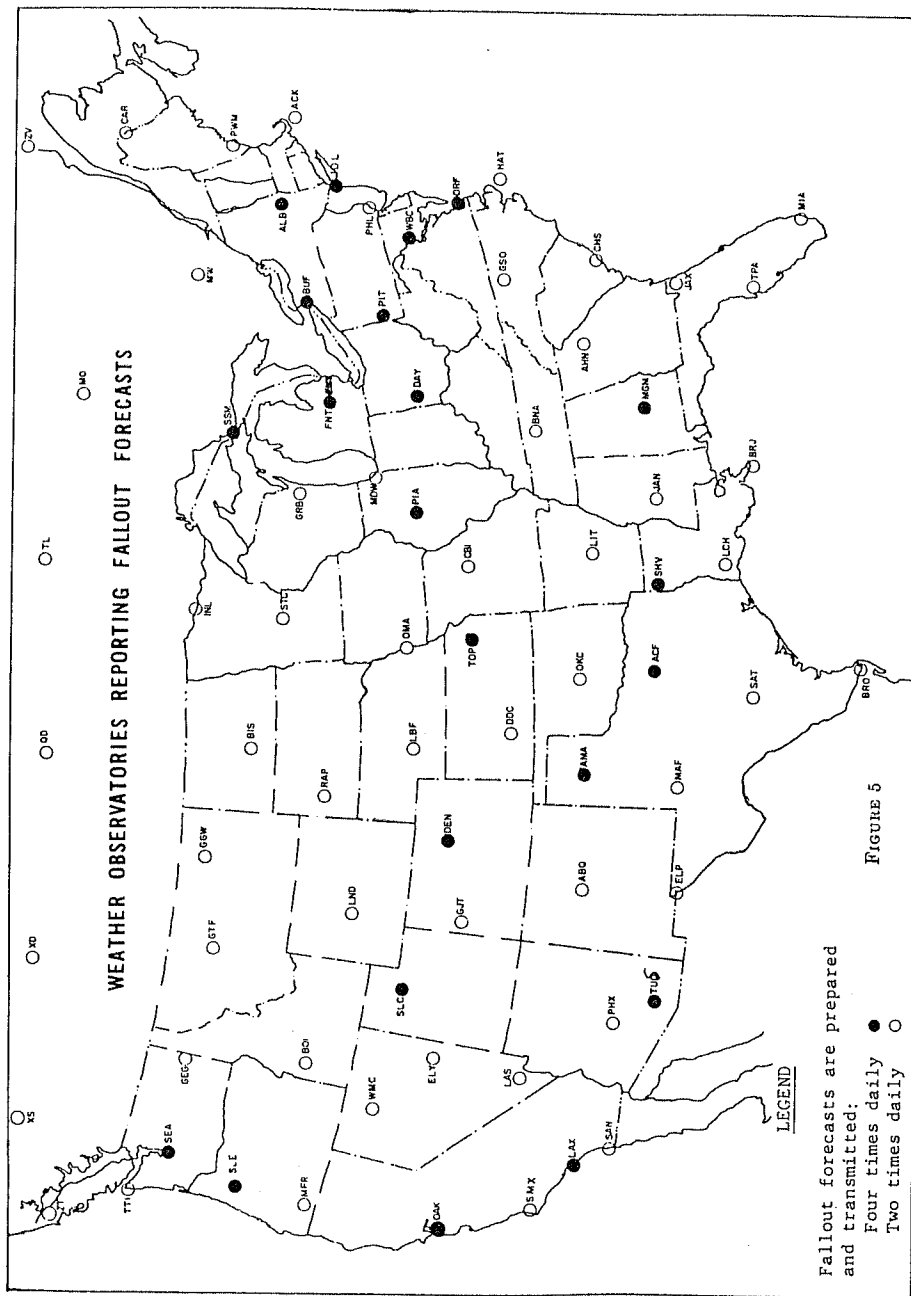
Ontario

Moosonee
 Trout Lake

Quebec

Maniwaki
 Seven Island

*Fallout forecasts are prepared and transmitted four times daily.



FCDA program planning for fiscal years 1958 and 1959 resulted in the selection of radiological defense as one of the two top priority programs for the Agency (the other: Government in Emergency). Future operations were to be accelerated toward the goal of a national plan and operational capability for radiological defense.

ENGINEERING PROGRAM

One of the important responsibilities of FCDA is to carry out an engineering program to provide designs for the most efficient and economical fallout and blast shelters, and develop engineering methods, techniques, and specifications for engineering equipment that would be essential to national survival, restoration, and recovery. The latter includes techniques for decontamination, emergency water supply, debris clearance, mass burial, and waste disposal.

In fiscal year 1957, the engineering program emphasized the development of designs and the issuance of information on shelters. Special studies of various aspects of the shelter problem were made. Preliminary plans and cost estimates for a national shelter program were developed and submitted to higher levels of the executive branch. A comprehensive guidance manual was prepared for use in the evaluation of existing structures for shelter purposes. Procedures for improvising fallout shelter were formulated for distribution to the public in the event of a national emergency. Designs for a 30-100 person industry blast shelter, designed to resist an overpressure of 100 pounds per square inch, were distributed throughout the country. A dual purpose underground garage shelter, underground home shelters, several dome-type structures, and a prototype heavy-duty blast door were designed to resist a blast overpressure of 30 pounds per square inch, and to provide initial, thermal, and fallout radiation protection. These were constructed at the Nevada Test Site for testing. Several sizes of blast valves, an aboveground masonry structure, and heavy doors of conventional materials also were prepared for testing.

In addition, technical guidance was furnished to State and local governments for the design and construction of a number of control centers. Technical criteria and specifications were updated for essential postattack engineering equipment approved for the Contributions Program. Information was issued on the emergency restoration of gas, electric, water, and sewerage facilities. Assistance was given to the Armed Forces Special Weapons Project and the Atomic Energy Commission in the preparation of the manual, *The Effects of Nuclear Weapons*.

MEDICAL CARE PROGRAM

Developing a national plan for the medical care of the population surviving an enemy attack is an important FCDA objective. During fiscal year 1957 important progress was made toward this goal.

Significant increases in the destructive power of nuclear weapons have expanded the potential postattack medical problem. Planning for total medical care, including the treatment and care of non-casualties, became essential. Following extensive discussions between representatives of FCDA and the American Medical Association, an agreement was reached for an AMA research project to determine the basic facts from which a national emergency medical care plan can be developed.

The American National Red Cross accepted the responsibility for developing and directing a national plan for the provision of whole blood in an emergency.

Procurement of the 200-bed civil defense emergency hospital, which was field tested at Fort Meade, Md., and Fort Sam Houston, Tex., in fiscal year 1956, continued during the fiscal year 1957. By June 30, 1957, a total of 120 hospital units had been delivered to prepositioning storage sites in 13 States and Hawaii. Agreements for 36 other storage sites in these and 3 additional States had been approved. In addition, 45 hospital units had been allocated to 35 States, the District of Columbia, and Hawaii (an increase in fiscal year 1957 of 7 States) for training purposes. Possibilities were discussed for storing hospital units on inactive ships of the Maritime Administration reserve fleet, and in Veterans Administration and Public Health Service hospitals.

More than \$44 million in Federal money was obligated in the expansion of FCDA medical stockpiles during the fiscal year. Basic backup supplies and other materials sufficient for the care of an additional 750,000 casualties for 3 weeks were procured. An additional 1,000 civil defense emergency hospital units were ordered. (For additional information on medical stockpiles, see chapter 8, Stockpiling.)

Under the medical contributions program a total of \$1,256,000 was obligated during the fiscal year for such items as first-aid stations, emergency hospital units, blood recipient sets, blood plasma expanders, protective masks, emergency sanitation equipment, and communicable disease control laboratory equipment.

A number of activities in the health program related to medical care were conducted under the FCDA delegation to the Department of Health, Education, and Welfare. (Information on these may be found in chapter 2, Federal Agency Utilization Program.)

TRANSPORTATION PROGRAM

To make uniform guidance material on emergency transportation planning available at State and local levels, a draft of a manual entitled, *Transportation Organization and Operations*, was prepared and distributed. The manual elaborated upon the use of transportation in an emergency, as outlined in the *National Plan For Civil Defense Against Enemy Attack*. It suggested methods for implementing that plan at all levels of government.

Two advisory bulletins dealing with planning for the protection and use of transportation equipment were distributed during the year. Advisory Bulletin No. 199, *The National Emergency Defense Airlift (NEDA) Plan*, provided information and guidance on the allocation and mobilization of aircraft. Completion of this bulletin was accomplished by cooperative and coordinated action with the Defense Air Transport Administration (DATA). The same cooperative effort between FCDA and the United States Coast Guard resulted in Advisory Bulletin No. 209, *Plans for Dispersal of Merchant Vessels*. The Coast Guard, which is responsible for security in all ports, instructed its commanders to prepare dispersal plans for vessels at all ports in coordination with civil defense plans.

The Federal Maritime Administration conducted a series of courses for merchant vessel operators on the principles of defense against biological, chemical, and radiological warfare.

During the year, the Civil Aeronautics Board established a working group to study the problem of requirements for air transport service in the event of a war-caused emergency. FCDA participated with this working group in an effort to estimate minimum civil requirements upon which to base plans for the efficient use of air transport resources in an emergency.

COMMUNICATIONS

FCDA continued to improve the nationwide attack warning system, and emergency operations communication facilities during the fiscal year. The time required to spread an initial attack warning throughout the Nation was reduced. Communication facilities available for emergency operations were increased.

ATTACK WARNING

A redesigned National Warning System (NAWAS) was placed in operation on May 1, 1957, making it possible to provide warning of impending attack to 199 warning points (previously designated as "key points") virtually simultaneously. Previously, a warning could be spread throughout the Nation and acknowledgment of receipt returned in about 7 minutes. The new system reduced the time for this procedure to less than 4 minutes.

The nationwide attack warning system is made up of 2 distinct components: the federally-supported NAWAS, and State and local warning systems. NAWAS, which replaces the Civil Air Defense Warning System (CADW) includes 3 FCDA warning centers: the National/Central Warning Center at North American Air Defense Command Headquarters, Colorado Springs, Colo.; the Eastern Warning Center at Eastern Continental Air Defense Command Region Headquarters, Newburgh, N. Y.; and the Western Warning Center at Western Continental Air Defense Command Region Headquarters, Hamilton, Calif. These 3 centers, which replace the 16 FCDA warning centers previously located at the joint air divisions of CONAD, are manned 24 hours a day by FCDA attack warning officers.

NAWAS was designed so that each warning center can disseminate warning times and tactical information to warning points within its area of responsibility. In the event of communication failures, each center can provide the same information to warning points under either or both of the other FCDA warning centers.

A control net connecting the three warning centers, FCDA regional offices, and FCDA Headquarters, was included to facilitate exchange of tactical information on which warning time is computed. The entire Federal system consists of full-period, private wire, 2-way circuits which provide a maximum of security and speed of message transmission.

Warnings are passed to the 199 warning points over NAWAS and relayed through State and local warning systems to more than 3,500 secondary warning points. Local authorities are responsible for sounding the appropriate signal on public warning devices, such as sirens, horns, or whistles. State warning systems use telephone, teletype, State police, and sheriffs' radio nets.

The following list and map show the locations of the 199 warning points served by each of the 3 FCDA warning centers:

WARNING POINT LOCATIONS

Eastern Warning Center

Alabama	Kentucky	New York
*Montgomery	*La Grange	*New York City
Birmingham	Maine	Albany
Gadsden	*Augusta	Binghamton
Mobile	Bangor	Buffalo
Connecticut	Houlton	Garden City
*Hartford	Portland	Hawthorne
Bloomfield	Maryland	Newburgh
Colchester	*Pikesville	Niagara Falls
New Haven	Hagerstown	Plattsburg
Ridgefield	Salisbury	Rochester
Delaware	Massachusetts	Schenectady
*Dover	*Boston	Syracuse
Delaware City	Bridgewater	Troy
District of Columbia	Holden	Utica
*Washington, D. C.	Northampton	North Carolina
Florida	Michigan	*Raleigh
*Jacksonville	*East Lansing	Ohio
Miami	Bay City	*Cambridge
Tallahassee	Detroit	Canton
Tampa	Jackson	Cincinnati
Georgia	Marquette	Cleveland
*Atlanta	Paw Paw	Dayton
Savannah	Port Huron	Delaware
Indiana	Rockford	Findley
*Pendleton	Sault Ste. Marie	Ironton
Charlestown	Traverse City	Toledo
Chesterton	Mississippi	Youngstown
Connersville	*Jackson	Pennsylvania
Greencastle	New Hampshire	*Harrisburg
Indianapolis	*Concord	Allentown
Jasper	Littleton	Blakely
Ligonier	New Jersey	Butler
Redkey	*Trenton	Erie
Seymour	Hammonton	Greensburg
West Lafayette	Morristown	Holidaysburg
		Lancaster

*State Warning Points.

Eastern Warning Center—Continued

Pennsylvania—Con.	South Carolina	Virginia
Montoursville	*Columbia	*Richmond
Philadelphia	Tennessee	Norfolk
Pittsburgh	*Nashville	West Virginia
Punxsutawney	Arlington	*South Charleston
Reading	Chattanooga	Clarksburg
Washington	Knoxville	Martinsburg
Wilkes-Barre	Vermont	Parkersburg
Rhode Island	*Montpelier	Wheeling
*Providence	Rutland	

National/Central Warning Center

Arkansas	Louisiana	Oklahoma
*Little Rock	*Baton Rouge	*Tulsa
Colorado	Bossier City	Edmond
*Denver	New Orleans	South Dakota
Illinois	Minnesota	*Rapid City
*Urbana	*St. Paul	Pierre
Chicago	Brainerd	Texas
East St. Louis	Duluth	*Austin
Joliet	Minneapolis	Arlington
Park Forest	Rochester	Boerne
Peoria	Missouri	El Paso
Rock Island	*Jefferson City	Houston
Rockford	Kansas City	Wisconsin
Springfield	St. Louis	*Madison
Iowa	Nebraska	Appleton
*Des Moines	*Omaha	Eau Claire
Cedar Rapids	Lincoln	LaCrosse
Council Bluffs	New Mexico	Milwaukee
Davenport	*Santa Fe	Stevens Point
Sioux City	North Dakota	Superior
Waterloo	*Bismarck	Wausau
Kansas	Fargo	Wyoming
*Topeka		*Cheyenne
Wichita		

Western Warning Center

Arizona	California—Continued	Montana
*Phoenix	Redding	*Helena
Kingman	Salinas	Nevada
California	San Bernardino	*Reno
*Sacramento	San Diego	Oregon
Bakersfield	Santa Barbara	*Salem
El Centro	Ukiah	Eugene
Fresno	Idaho	Medford
Los Angeles	*Boise	Pendleton
Oakland	Coeur d'Alene	

*State Warning Points.

Western Warning Center—Continued

Oregon—Continued	Washington	Washington—Continued
Portland	*Olympia	Spokane
The Dalles	Coulee Dam	Tacoma
	Everett	Wenatchee
Utah	Pasco	Yakima
*Salt Lake City	Renton	

LOCAL PUBLIC WARNING

Adequate systems to warn the population of an impending attack has been a major concern of FCDA. States and cities have the responsibility to procure and install the necessary warning devices. The Federal Government provides half of the funds under the Federal Contributions Program. Through June 30, 1957, a total of \$7,562,989 in Federal contributions was obligated for attack warning programs of States and localities.

Of the 264 principal cities in target areas, 154 or 59 percent had adequate warning systems as of June 30, 1957. These cities have installed sirens or other outdoor warning devices to provide essential warning coverage of their respective areas. The remaining cities had varying degrees of coverage with 18 cities regarded as completely inadequate, as indicated in the table below. The 264 cities include all cities of 50,000 population or more and State capitals (without regard to population) in the United States, its Territories, and possessions.

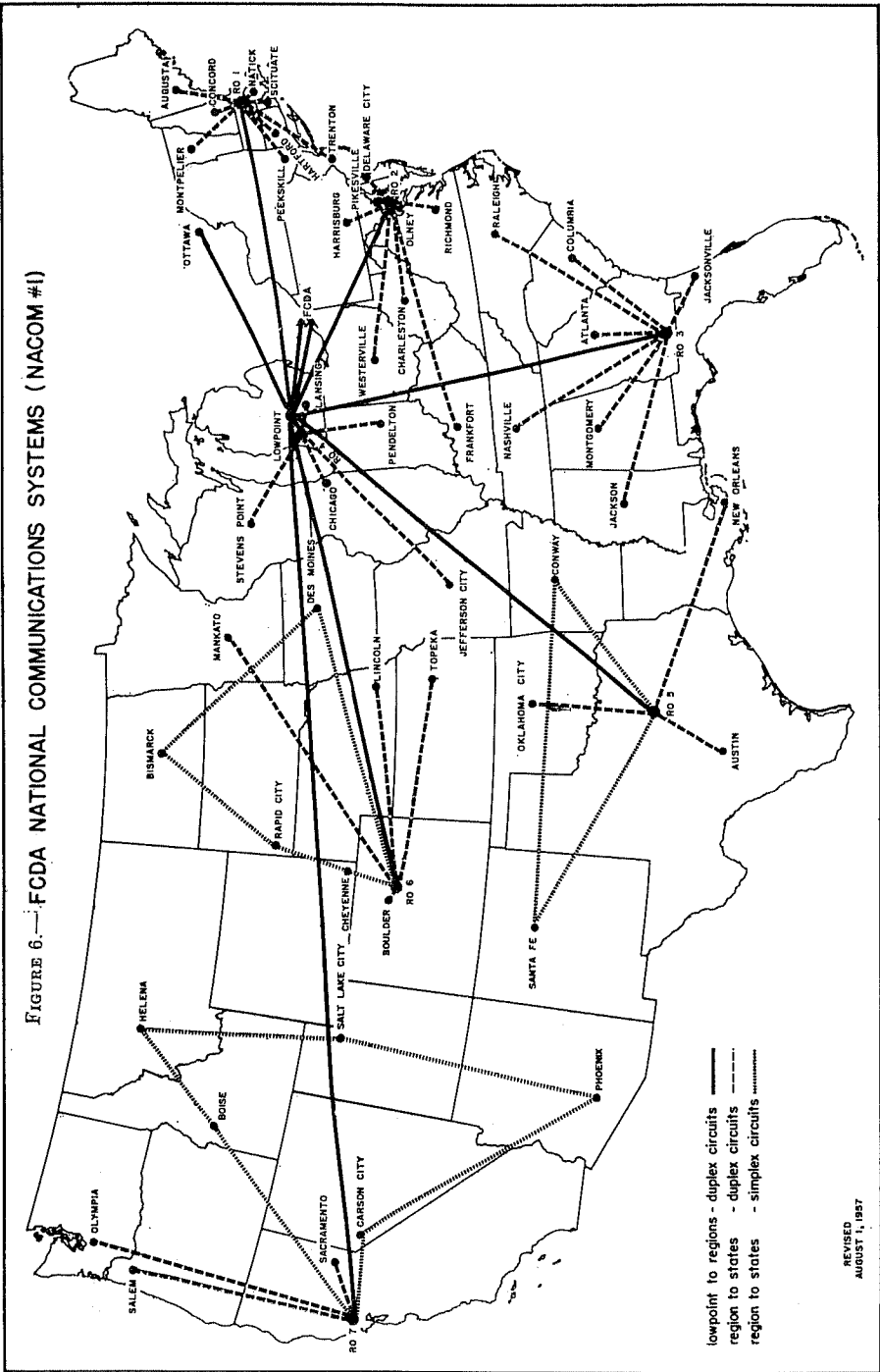
WARNING STATUS OF PRINCIPAL CITIES

Status	Number of cities	Percent-age of total
Adequate.....	154	59
50-99% adequate.....	73	27
1-49% adequate.....	19	7
Inadequate.....	18	7
Total.....	264	100

The number of cities reporting adequate warning coverage declined during the fiscal year. Some cities reevaluated their warning systems and determined that coverage was not as complete as originally believed. Also, newly developed areas in some cities require additional warning devices to provide adequate coverage. However, there were fewer major cities with inadequate warning systems in fiscal year 1957 (18 cities) than there were in fiscal year 1956 (22 cities).

*State Warning Points.

FIGURE 6.—FCDA NATIONAL COMMUNICATIONS SYSTEMS (NACOM #1)



Outdoor warning devices are not completely satisfactory. The outdoor devices may not be heard in some buildings and homes. FCDA has contracted with certain research organizations to study and develop internal warning systems which can use existing power distributing or telephone facilities. (See chapter 4, Research and Program Development.)

WASHINGTON AREA WARNING STUDY

A comprehensive engineering staff study completed in fiscal year 1957 was designed to provide warning and communications to serve the needs of the Nation's capital. The plan outlines broad warning and communications equipment requirements for effective dissemination of warning to civil authorities and to the civilian population in the Washington, D. C., Metropolitan Area. The siren installations have been designed by type and quantity to provide full coverage of the populated sections of this area, with a control network to guarantee their reliable operation. Provisions have been incorporated for emergency operation of the system in case of power failure or landline control disruption. Implementation of this system is planned in succeeding fiscal years.

OPERATIONAL COMMUNICATIONS

National Communications System 1 (NACOM).—The Federal Civil Defense Administration maintains a national communications system which serves FCDA National Headquarters, regional headquarters, 48 State control centers, and the District of Columbia. This system, which contains about 20,000 miles of leased wire facilities, has the capability of either voice or teletypewriter operation. To improve the operational capability of the NACOM facilities at the State level, additional equipment was added to the system during June 1957.

DELNET.—In June 1957 a teletypewriter system, known as DELNET, was established to provide communications between FCDA National Headquarters and national relocation sites of key Federal agencies on a permanent basis.

Radio Spectrum Study.—A radio spectrum study was conducted to determine suitable radio frequencies to be used for communications through the National Headquarters and the seven regions. As a result, the Interdepartment Radio Advisory Committee (IRAC) authorized FCDA to make emergency use of several frequencies.

CONELRAD.—FCDA continued attempts to improve the CONELRAD (Control of Electromagnetic Radiations) system to broadcast official information to the public without providing a directional aid to an attacking enemy. Particular attention was given

to the inadequacies of CONELRAD coverage in suburban and rural areas.

Radio Amateur Emergency Services (RACES).—The RACES program continued to expand in fiscal year 1957. Approximately 850 State, area, county, and city RACES operational plans were approved at the close of the fiscal year. Only two of the States did not have State RACES plans, although communities in each of these States did have accepted plans. All of the FCDA regions, except Region 1, had FCC approval to operate in RACES networks, and the necessary radio equipment was installed in the regions.

Interagency Coordination.—Several proposed regulations by the Federal Communications Commission were supported, with suggested modifications by FCDA, to improve essential radio communications for State and local emergency operations.

CONTRIBUTIONS

In cooperation with the Radio Electronic Television Manufacturers Association, methods were evolved for the identification of communications equipment purchased under the Federal Contributions Program. The "List of Certified Radio Equipment," which includes the model and manufacture of all radio equipment eligible for purchase under the FCDA Contributions Program, was expanded to include 1,500 different model numbers as certified by 37 manufacturers.

The program of acquiring emergency communications equipment for States and localities through the Federal Contributions Program was expanded during the year. Most of the contributions money for communications was obligated to expand such State and local facilities as police, fire, highway maintenance, public utility, and other civil government radio and wire systems, to meet unusual emergency conditions.

COMMUNICATIONS RESEARCH

A considerable amount of communications research was conducted under FCDA supervision during the year. Three major areas of investigation were emphasized: Voice sound systems for use in cities to provide outdoor emergency instructions; internal warning systems to provide a means of attack warning within buildings, and basic studies of warning and communications techniques. Additional information on these activities may be found in chapter 4, Research and Program Development.

TRAINING AND PUBLIC INFORMATION

TRAINING

FCDA instructors conducted 65 training courses and conferences attended by 2,312 persons during the fiscal year. This raised to 14,387 the total number of persons who have received instruction in FCDA training schools. In addition to the Staff College courses conducted for government officials with civil defense responsibilities, the FCDA training program includes courses in technical specialties designed to train instructors who are then capable of teaching similar courses at the Federal, State, and local levels.

The Civil Defense Administration course was given 3 times during the year, with an attendance of 177 students. This 5-day course was developed primarily as a civil defense orientation course for key officials such as mayors, State, county, and city civil defense directors, and chiefs of governmental services. The course covered the following subjects: Nature and scope of a possible enemy attack; the effects of modern weapons; methods of assessing vulnerability; the responsibility and functions of Federal and State agencies in supporting local efforts to overcome the effects of natural and enemy-caused disasters; relationship of evacuation and shelter in the light of high-yield nuclear weapons; the detection and attack warning system; the planning required by small communities in providing for the reception and care of evacuees; recruitment, training, and use of volunteers; psychological reactions to disaster, and control center procedures.

The Civil Defense Operations course, an advanced course for persons interested in State and local operations, was given twice, with a student attendance of 126. Its objectives were to indicate the scope and magnitude of the attack problems confronting civil defense; develop student knowledge and capabilities in planning emergency operations; define methods of testing and rehearsing operational plans; familiarize students with the types of support resources available, and practice control center procedures by an exercise in which students assumed staff positions and acted on simulated messages.

The course on Principles of Tactical Evacuation was given twice with an attendance of 88. This was an advanced course primarily for persons responsible for developing evacuation plans in target and critical target areas. Its main objective was to introduce the prin-

ciples of tactical evacuation, and show how these principles may be adapted for specific problems in various communities.

A special Natural Disaster course was given twice to a total of 145 State and local officials and professional personnel of organizations involved in natural disaster activities. The objectives of this course were to present an appreciation of the types and severity of natural disasters that might occur; examine local and State disaster organizations and their ability to operate in major disasters; interpret the provisions of Public Law 875 with resulting Federal action and aid; examine Federal-State disaster agreements and contracts and interstate compacts; emphasize the importance of effective disaster investigations, intelligence, and public information programs; identify and trace the operations of field forces; describe the capabilities of Federal agencies and channels for bringing their resources into action, including interagency coordination; examine emergency communications capabilities; to understand FCDA-Red Cross agreements; explain the role of the military in natural disasters; and explain the intricacies and importance of disaster relief project applications, accounting, and reimbursement procedures.

Special training in rescue techniques and operations was given to 562 persons at the FCDA Rescue School at Olney, Md., during the fiscal year. A new Radiological Defense School trained nearly 300 instructors in radiological monitoring. In addition, 500 persons attended a series of 2-day regional rescue institutes, 295 persons attended 2 police institutes at Jefferson City, Mo., and 125 persons were trained in emergency traffic control techniques as part of a program developed by FCDA in conjunction with the Northwestern University Traffic Institute.

In addition to the training in FCDA schools, the Agency school extension program was expanded to three more States: Nebraska, Alabama, and Kentucky.

Under this program, which started in fiscal year 1955, an agreement is executed with the State civil defense office which calls for the presentation of an initial Civil Defense Administration course in the State by a traveling team of FCDA instructors. Some institution of higher learning in the State serves as a cooperating agency, and its facilities are used. University faculty members and key State and local civil defense personnel take the course, and serve as instructors in subsequent State courses. The State agrees, under contract, to present the same type of course at least twice a year for 3 years.

The program was started in Ohio in August 1954, and was expanded to include Connecticut, Florida, Georgia, Wisconsin, Tennessee, Maine, Maryland, Louisiana, and Kansas prior to fiscal year 1957.

TRAINING AT FCDA SCHOOLS

Fiscal Year 1957

Type of training	Number of	
	Courses or conferences	Persons trained
Staff college basic courses:		
Administration.....	3	177
Evacuation.....	2	88
Operations.....	2	126
Total.....	7	391
Special courses and conferences:		
American Legion Auxiliary.....	1	54
Business industry education.....	1	50
Health service.....	2	92
Industry defense.....	4	179
Natural disasters.....	2	145
Nurses.....	1	61
Parent-teacher association.....	1	42
Religious affairs.....	3	165
Rural civil defense planning.....	1	49
State and local school administrators.....	1	34
Welfare.....	2	153
In-service training.....	1	36
Total.....	20	1, 060
Rescue school:		
Light rescue instructor.....	14	323
Heavy rescue instructor.....	11	220
Advanced rescue.....	1	19
Total.....	26	562
Radiological defense school:		
Instructor's course for radiological defense.....	12	299
Total all courses and training conferences.....	65	2, 312

To stimulate a greater interest in civil defense in schools and colleges, FCDA maintained close liaison with the Office of Education of the Department of Health, Education, and Welfare. A Civil Defense Education Project was developed as part of the department's activities under its civil defense delegated responsibilities. "Civil Defense Information Sheets" were distributed to educators throughout the Nation. In addition, presentations on radiological defense were made to more than 3,000 science teachers at 55 summer science institutes sponsored by the National Science Foundation.

A publication entitled *Civil Defense Education Through Elementary and Secondary Schools* was developed cooperatively by the National Education Association and FCDA, and distributed to a selected list of NEA members and civil defense directors. A similar publication entitled *Civil Defense and Vocational Education* was developed cooperatively by the American Vocational Association and FCDA, and distributed to civil defense directors and all AVA members. A contract was negotiated with the National School Boards Association, Inc., for the cooperative development of a similar publication designed primarily for school board members. The American Publishers Institute agreed to assist in the integration of civil defense concepts into future textbook releases.

Training in emergency operations was expanded during the fiscal year. Operation Alert 1956, the third national civil defense exercise was held July 20-25, 1956. It drew increased participation by Federal, State, and local governmental units in the operational problems that could result from a nuclear attack. Operation Sentinal, the first in a series of civil defense command post exercises, was held at FCDA Headquarters in March 1957. In addition to FCDA personnel, representatives of 17 other Federal agencies, the American National Red Cross, and civil defense directors of 6 States and 6 cities participated in the 3-day exercise. The purpose of the exercise was to test and improve staff procedures in emergency operations, and to identify major operating problems and devise solutions for them.

PUBLIC INFORMATION

As part of a continuing program to inform the public on the threat of nuclear warfare, and defensive measures that can be taken to minimize such a disaster, FCDA conducted an extensive public information program during fiscal year 1957.

One of the largest single public awareness projects, the first National Civil Defense Week, was carried out in September 1956 in cooperation with mass communication media, and State and local civil defense directors.

In an effort to provide continuity of public information in the event of attack, FCDA and the news wire services (Associated Press, United Press, International News Service) entered into an agreement to plan emergency information procedures. In addition, FCDA and State officials met with newspaper publishers to lay the framework for the development of emergency publishing plans.

In addition to news releases, magazine articles, speeches, exhibits, and special information kits, 6 motion pictures, some of them spon-

sored and produced by private enterprises at no cost to FCDA, and 10 training filmstrips were completed and distributed during the fiscal year. A total of 140 network civil defense radio shows, 1 television program, and 15 "spot" announcements on civil defense were produced.

The Agency publications program was expanded with 48 new publications, including 2 technical manuals, 9 technical bulletins, 1 technical report, 3 instructors guides, 1 program guide, 2 pocket manuals, 17 advisory bulletins, 4 leaflets, and 9 miscellaneous publications. Many of the publications, such as administrative and technical manuals, were distributed primarily to officials concerned with civil defense problems and techniques. Others were for the information and guidance of the general public.

Fiscal year 1957 saw the establishment of an FCDA map library. In addition to reference and specimen copies of a large variety of maps, work began on stockpiling selected maps for operational use. Map folios were prepared for approximately 50 percent of the States at the close of the fiscal year. Folios for the balance of the States and for the urban areas were scheduled for completion in fiscal year 1958.

CIVIL DEFENSE PARTICIPATION BY SPECIAL GROUPS AND ORGANIZATIONS

Many national, State, and local groups and organizations cooperated with FCDA during the fiscal year to improve civil defense. This chapter is intended as a broad indication of civil defense activities by special groups and organizations rather than a detailed report of all such activities and the organizations that conducted them.

AMERICAN NATIONAL RED CROSS COOPERATION

The cooperation of the American National Red Cross with FCDA, based on earlier agreements and staffing patterns, was continued.

Revision of the *American Red Cross Text Book on First Aid*, reducing the standard course to 10 hours of instruction, was completed. This shorter course emphasizes the life-saving practices which every citizen should be able to perform to save his own life and the lives of others in time of emergency. During the year, 521,572 persons completed the existing standard first-aid course.

The cooperative courses in emergency mass feeding and care of the sick and injured, begun in the previous year, were completed, tested, and put into operation. More than 137,300 persons were trained in the care of the sick and injured. More than 10,000 persons were trained in mass-feeding techniques.

FCDA and the Red Cross worked to develop a nationwide blood-procurement system. Certain aspects of the plan were tested during Operation Alert 1957. Under assignment from FCDA, the Red Cross is continuing to develop the national system in which the participation of all blood-collecting groups will be needed.

The year 1957 was one of the heaviest disaster years since the two agencies have been working together to relieve disaster-stricken communities and people. These disasters included principally floods, tornadoes, and hurricanes at widely separated points in the country. Based on previous understandings of the responsibilities, policies, and procedures of the two agencies, cooperation proceeded in the closest manner, and relief to the victims was prompt and effective.

CIVIL DEFENSE ADVISORY COUNCIL

During fiscal year 1957, 2 new members were appointed to the Civil Defense Advisory Council, replacing members whose terms had expired, and 3 members were reappointed.

At the close of the year the following were members:

Hon. Goodwin J. Knight, Governor of California.

Hon. J. Caleb Boggs, Governor of Delaware (new member).

Hon. John B. Hynes, Mayor of Boston, Mass.

Hon. Albert E. Cobo,¹ Mayor of Detroit, Mich.

Hon. Clifford E. Rishell, Mayor of Oakland, Calif.

Mrs. Charles W. Weis, Jr., Rochester, N. Y.

Gen. Otto L. Nelson, Jr., vice president, New York Life Insurance Co. (reappointed).

Robert E. Smith, Houston, Tex. (new member).

Hon. Okey L. Patteson, former Governor of West Virginia (reappointed).

Hon. Allen B. Shivers, former Governor of Texas.

George J. Richardson, Silver Spring, Md. (reappointed).

The Council met once during the year on May 28-29, 1957, in Washington, D. C. The members discussed the 1957 FCDA atomic test program, the policy position of FCDA with respect to the provision of shelter against the effects of nuclear warfare, Civil Defense Week—1957, and the FCDA proposal for continuity of State and local government.

Two members of the Council, General Nelson and Mayor Rishell, visited the Atomic Energy Commission's Nevada Test Site June 25-27, 1957, to observe FCDA's part in the atomic test series.

NATIONAL ADVISORY COUNCIL ON RURAL CIVIL DEFENSE

Established December 30, 1955, the National Advisory Council on Rural Civil Defense is composed of the FCDA Administrator, who serves as Council chairman, and 24 other members, including representatives of the American Farm Bureau Federation, National Farmers Union, National Grange, National Association of Television and Radio Farm Directors, American Agricultural Editors Association, National Association of Commissioners, Secretaries and Directors of Agriculture, Association of Land Grant Colleges and Universities, American Veterinary Association, Department of Agriculture, Agricultural Education Branch and Public Health Service of the Department of Health, Education, and Welfare, Agricultural Department of the United States Chamber of Commerce, National Association of State Civil Defense Directors, the United States Civil Defense Council, Council of State Governments, National Association of County Officials, American Municipal Association, United States Conference of Mayors, and National Council of Farmer Cooperatives.

The function of the Council is to advise FCDA in the development, implementation, and dissemination of practical plans for the organi-

¹ Deceased.

zation of civil defense in the nonurban areas of the Nation. The Council considers realistic assessment of probable threats, including radioactive fallout to rural areas; continuity of agricultural production under and following attack; continuity of ability to deliver produce to points of need; necessity for rural areas to receive large elements of evacuees from cities; and requirements for furnishing elements of mobile support to attack areas. The third and fourth meetings of the Council were held during the year.

CIVIL DEFENSE COORDINATING BOARD

The Civil Defense Coordinating Board was established by Executive Order 10611 on May 11, 1955. The Board is composed of representatives of 17 Federal agencies. The FCDA Administrator is the chairman. The first meeting was held in Washington on August 2, 1955.

The functions of the Board are:

1. To assist in the development of an orderly, integrated plan for the participation of all Federal departments and agencies in the civil defense of the Nation, taking into consideration other defense requirements, both economic and military.
2. To make recommendations to the President regarding specific arrangements involving the assumption of certain civil defense responsibility by the various departments and agencies.
3. To facilitate the development and implementation of such arrangements with the Department of Defense and the Office of Defense Mobilization.
4. To advise the President from time to time with respect to the progress of the integration of civil defense activities into the various departments and agencies of the Government.

During fiscal year 1957, provisions were made for regular quarterly meetings scheduled in January, April, July, and October. The 9th, 10th, and 11th Board meetings were held in Washington on September 25 and November 27, 1956, and on April 30, 1957. Subjects discussed were legislation proposals under consideration by FCDA; delegation financing; the revised *Basic Responsibilities Paper*; shelter plans for civil defense, Operation Alert, Civil Defense Week, and delegation progress reports from the Department of Agriculture, and from the Department of Health, Education, and Welfare.

CIVIL DEFENSE SCIENTIFIC ADVISORY COMMITTEE

In 1954, at the request of FCDA, the Civil Defense Scientific Advisory Committee was formed by the National Academy of Sciences. The Committee is composed of leading scientists and authorities from

various fields, who serve without pay. They advise FCDA on scientific problems and its research program. The members of the Committee are:

Dr. Lauriston S. Taylor (chairman), physicist, chief, Division of Atomic and Radiation Physics, National Bureau of Standards

Gerhard D. Bleicken, attorney, John Hancock Mutual Life Insurance Co.

Dr. Herbert M. Bosch, sanitary engineer, professor, University of Minnesota

Dr. Eugene P. Cronkite, physician and hematologist, Brookhaven National Laboratory

Dr. Richard M. Emberson, physicist, Associated Universities, Inc.

E. H. Holmes, highway engineer, United States Bureau of Public Roads

Dr. Rensis Likert, sociologist, director of the Institute for Social Research, University of Michigan

Dr. R. B. Roberts, physicist, Department of Terrestrial Magnetism, Carnegie Institution, Washington, D. C.

Dr. Herbert Scoville, Jr., physicist, Armed Forces Special Weapons Project, Department of Defense.

During fiscal year 1957, no formal meetings were held because of lack of a chairman and a technical director, but informal advice and consultation to FCDA continued. Members of the Committee were invited by FCDA to witness a portion of the 1957 Continental Test Series at the Nevada Test Site.

CONSULTING GROUPS IN INDUSTRIAL DEFENSE

During fiscal year 1957, FCDA worked closely with such national organizations as the National Safety Council, the United States Chamber of Commerce, the American Society of Industrial Security, and the National Manufacturers Association to improve civil defense planning within industry and other large facilities. Through the Safety Council, discussion of civil defense problems was included on the agenda of State Safety Association meetings, and the National Safety Congress. Many local chambers of commerce sponsored government-industry survival conferences. State manufacturers associations, as well as State safety associations, included seminars or panel discussions on civil defense and associated survival activities in their annual meetings.

FCDA LABOR ADVISORY COMMITTEE

The FCDA Labor Advisory Committee was organized in 1951 to advise FCDA on those programs and policies of civil defense that have a direct bearing on organized labor. Committee members are:

William F. Schnitzler, secretary-treasurer, AFL-CIO
William C. Doherty, president, National Association of Letter Carriers
W. C. Flinn, Grand Lodge representative, International Association of Machinists
Charles Ferguson, executive secretary, Pennsylvania CIO-CSC
A. E. Lyon, executive secretary-treasurer, Railway Labor Executive Association
C. W. Sickles, president, International Association of Asbestos Workers
Desmond Walker, secretary-treasurer, United Rubber Workers of America
W. D. Johnson, vice president, Brotherhood of Railway Conductors
George J. Richardson, special assistant to president, AFL-CIO
Elwood D. Swisher, vice president, Oil Chemical Atomic Workers
William M. Dunn, assistant to president, Communication Workers of America

During fiscal year 1957 the Committee cooperated with FCDA and the Department of Labor in developing plans to create civil defense task forces from the labor force. A pilot study of this task force plan was started in Grand Rapids, Mich.

NATIONAL WOMEN'S ADVISORY COMMITTEE

The FCDA National Women's Advisory Committee is composed of leaders of national women's organizations representing a total membership of some 26 million women, and directors of civil defense women's activities at the Federal, regional, and State levels. The committee, which assists FCDA in directing civil defense activities among women, held its annual meeting in Washington, D. C., in October 1956.

Among its many activities, the committee assisted in the development of Women's Civil Defense Councils at regional, State, and local levels. These councils, composed of representatives of all leading women's organizations, stimulate interest and participation in civil defense planning and operations.

STOCKPILING

The FCDA stockpiling program began with the Federal Civil Defense Act of 1950, which authorized the Administrator to buy and store critical supplies that would be needed in time of emergency. A total of nearly \$219 million had been appropriated for this program through fiscal year 1957. Of that amount, FCDA had obligated nearly \$215 million, and received delivery on medical, radiological defense, and engineering supplies valued at about \$174 million. There was no appropriation for fiscal year 1958 stockpiling procurement, but \$3.3 million was appropriated to improve warehouse facilities and pay the cost of transporting previously procured supplies to warehouses.

Most of the stockpiling money, particularly in recent years, has been spent to purchase and store selected medical and radiological defense items that would be in critical need in the event of enemy attack. At the end of fiscal year 1957, medical and radiological defense supplies valued at about \$167 million had been stockpiled by FCDA. In fiscal years 1952 and 1953, and to a very limited extent in fiscal years 1956 and 1957, some stockpiling money also was spent to purchase and store selected engineering items. These included generators, chlorinators, water purifiers, pumps, and pipe. At the end of fiscal year 1957, engineering supplies valued at about \$7 million had been stockpiled by FCDA.

Procurement for the stockpiling program in fiscal year 1957 was based on an appropriation of \$46,783,886. Of that amount, FCDA obligated about \$45 million for medical and radiological defense supplies. At the end of the fiscal year FCDA had in storage more than 900 civil defense emergency hospital units (FCDA, State, and local storage sites), 9,000,000 burn dressings, 2,500,000 blood-recipient sets, 1,500,000 units of blood derivatives, 4,000,000 units of plasma expanders, 1,400 gas masks, 5,900,000 doses of atropine, 41,900,000 doses of vaccines and antitoxins, 1,500,000 paper blankets, 307,000 liters, 175,000 radiological dosimeters, and 96,000 radiological survey meters.²

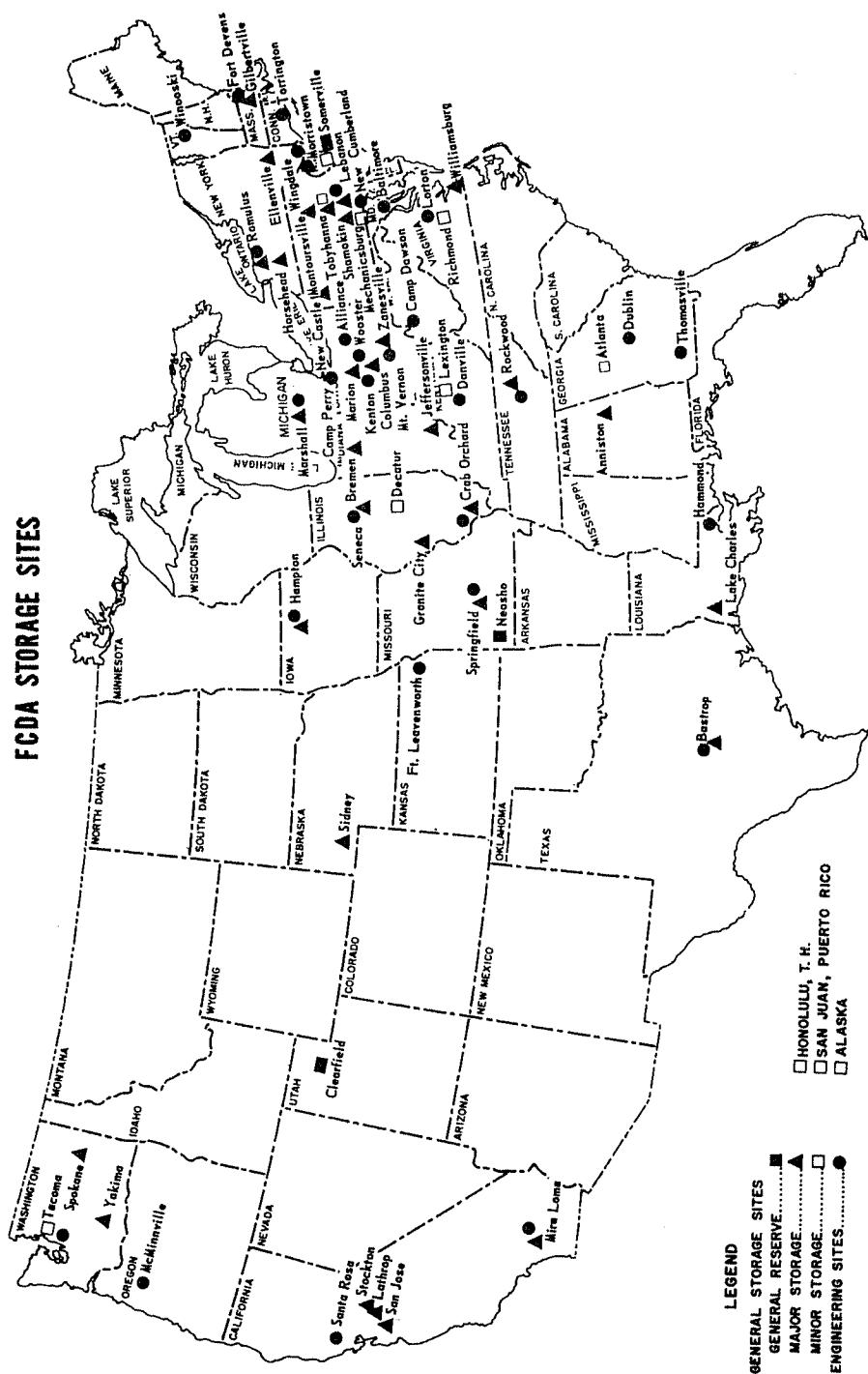
CIVIL DEFENSE EMERGENCY HOSPITALS

FCDA has ordered components for 1,932 civil defense emergency hospital units. Components for 1,000 of the units were ordered in fiscal year 1957.

The 200-bed emergency hospital unit, developed to help fill an anticipated gap in hospital facilities in the event of nuclear attack,

² Includes radiological instruments on loan or grant to States.

FCDA STORAGE SITES



consists of about 370 packages and crates of material weighing about 12 tons. The unit can be transported in 1 van of 1,600 cubic feet capacity, and requires about 15,000 square feet of space when it is set up.

The hospitals are not ordered as complete units, but as a large number of individual items that must be sorted and assembled into complete hospital units. At the end of the fiscal year, equipment for 932 hospitals had been delivered to FCDA for assembly. Of that total, FCDA stockpiles contained 766 hospital units. Forty-five were loaned to States and 1 to Canada for training purposes, and 120 units were stored at State and local sites under the FCDA emergency hospital pre-positioning program.

Under the FCDA pre-positioning program, emergency hospital units are placed in safe permanent State and local storage facilities where they can be unpacked and put into operation with a minimum of delay. States can obtain emergency hospital units under the pre-positioning program by accepting responsibility for adequate maintenance and protective care. All acquisition costs, including transportation, are paid by FCDA. All costs for storage, care, and protection are paid by the State. Title to the hospital unit remains with the Federal Government. All plans for the use of the hospital units during a civil defense emergency must be approved by FCDA. However, the hospitals may be used for casualty care during a major peacetime disaster declared by the President. At the end of the fiscal year 120 emergency hospital units were stored under the pre-positioning plan at the following locations:

LOCATIONS OF PRE-POSITIONED HOSPITALS JUNE 30, 1957

Region 1

Federal Correctional Institution, Danbury, Conn.
 Town Hall, Deep River, Conn.
 Mansfield State Training School and Hospital, Mansfield Depot, Conn.
 North End School, New Hartford, Conn.
 New Milford Hospital, New Milford, Conn.
 Fairfield State Hospital, Newton, Conn.
 Town Hall, Ridgefield, Conn.
 Northeast School, Rockville, Conn.
 Sharon Center School, Sharon, Conn.
 American Thread Company, Willimantic, Conn.

Region 1—Continued

Litchfield County Hospital, Winsted, Conn.
 Plunkett Memorial Hospital, Adams, Mass.
 Town Hall, Adams, Mass.
 Phillip's Andover Academy, Andover, Mass.
 Ashland Junior-Senior High School, Ashland, Mass.
 Maritime Academy-Dormitory Building, Barnstable, Mass.
 Cohasset High School, Cohasset, Mass.
 Easthampton High School, Easthampton, Mass.

Region 1—Continued

Eldredge-Bourne Bonded Warehouse and Lawrence High School, Falmouth, Mass.
 Burbank Hospital, Fitchburg, Mass.
 North Parish School, Greenfield, Mass.
 Plymouth County Hospital, Hanson, Mass.*
 Ferris Memorial Hospital, Lowell, Mass.
 Marshfield Grade School, Marshfield, Mass.
 Montague Center Elementary School, Montague, Mass.
 Cooley Dickenson Hospital, Northampton, Mass.
 Old Leeds School, Northampton, Mass.
 Norwell Elementary School, Norwell, Mass.
 Memorial Park School, Rockland, Mass.
 Harrington Memorial Hospital, Southbridge, Mass.
 Massachusetts Correctional Institution, South Bridgewater, Mass.*
 Tewksbury State Hospital, Tewksbury, Mass.**
 Mary Lane Hospital, Ware, Mass.
 Baxter Hall, Williams College, Williamstown, Mass.
 U. S. Government Post Office, Winchendon, Mass.
 Mary Hitchcock Hospital, Hanover, N. H.
 Zambarano Memorial Hospital, Walum Lake, R. I.
 Old Town Hall, Westerly, R. I.

Region 2

County Warehouse, Frederick, Md.
 Arlington Electric Co., Arlington, Ohio
 Town Hall, Clarksburg, Ohio
 Community Building, Londonderry, Ohio
 Henry County Home, Napoleon, Ohio
 St. Mary's Spoke Works, St. Marys, Ohio
 Wapakoneta Electric Co., Wapakoneta, Ohio

Region 2—Continued

Clarion State Teachers College, Clarion, Pa.
 State Teachers College, East Stroudsburg, Pa.
 Sportsman's Hall, Latrobe, Pa.
 Lebanon Valley College, Lebanon, Pa.
 First Presbyterian Church, Warren, Pa.
 Children's Home, Waynesburg, Pa.

Region 3

Altoona High School Gymnasium Annex, Altoona, Ala.
 Fort Byrd Armory, Citronelle, Ala.
 Municipal Building, Hartselle, Ala.
 Crenshaw County Court House, Lurverne, Ala.
 Rock Springs Park, Apopka, Fla.
 Florida Development Commission Warehouse, Camp Blanding, Fla.
 Community Building, Crystal River, Fla.
 Old School Building, Islamorada, Fla.
 County Court House, Sarasota, Fla.

Region 4

Alton State Hospital, Alton, Ill.
 Anna State Hospital, Anna, Ill.
 Carlinville Civil Defense Corps, Carlinville, Ill.
 V. F. W. Building, Centralia, Ill.
 City Hall, Chicago Heights, Ill.
 Dixon State School, Dixon, Ill.
 Edwardsville Civil Defense Corps, Edwardsville, Ill.
 Elgin State Hospital, Elgin, Ill.*
 Galesburg State Research Hospital, Galesburg, Ill.*
 Knox County Court House, Galesburg, Ill.
 Township High School, Harrisburg, Ill.
 Illinois Braille and Sight Saving School, Jacksonville, Ill.
 Jacksonville State Hospital, Jacksonville, Ill.
 Williamson County Commodity Depot, Johnson City, Ill.*
 County Court House, Kankakee, Ill.

*Two hospitals.

**Three hospitals.

Region 4—Continued

Kankakee State Hospital, Kankakee, Ill.**
 Lincoln State Hospital, Lincoln, Ill.
 Manteno State Hospital, Manteno, Ill.
 Jefferson County Commodity Depot, Mount Vernon, Ill.*
 Illinois Soldiers' and Sailors' Children's School Hospital, Normal, Ill.
 Richland Court House, Olney, Ill.
 UAW-CIO Regional Recreational Center, Ottawa, Ill.
 Illinois Soldiers' and Sailors' Home, Quincy, Ill.
 Christian County Commodity Depot, Taylorville, Ill.*
 1002 E. Cleveland Street, West Frankfort, Ill.
 Fifth Ward School, Big Rapids, Mich.
 Brighton City Fire Department Building, Brighton, Mich.
 County Court Building, Howell, Mich.
 Midland County Road Commission Garage, Midland, Mich.
 Putnam Township Hall, Pinckney, Mich.

Region 4—Continued

Tecumseh Police Department, Tecumseh, Mich.
 High School, Beaver Dam, Wis.
 Delavan School for the Deaf, Delavan, Wis.
 Safety Building, Fond du Lac, Wis.*
 Mercy Hospital, Janesville, Wis.
 Cherokee Heights School, Madison, Wis.
 Midvale School, Madison, Wis.
 Mercy Hospital, Oshkosh, Wis.*
 Plymouth High School, Plymouth, Wis.
 Kohler School, Sheboygan, Wis.
 Wampun Memorial Hospital, Wampun, Wis.

Region 7

Territorial Hospital, Kaneohe, Oahu, T. H.
 Mount Angel Abbey, St. Benedict, Oreg.
 Oregon State College, Corvallis, Oreg.
 County Jail, McMinnville, Oreg.
 Molalla High School, Molalla, Oreg.
 Oregon State Hospital, Student Nurses' Home, Salem, Oreg.

DISTRIBUTION OF RADIOLOGICAL INSTRUMENTS

At the end of the fiscal year, FCDA had loaned or granted, for training and educational purposes, 35,330 radiological defense items, including 12,765 dosimeters, 6,180 dosimeter chargers, 16,294 survey meters, and 91 training kits. Radiological defense instruments were loaned or granted to nearly every State, Washington, D. C., Panama Canal Zone, Hawaii, Puerto Rico, Virgin Islands, Australia, Denmark, and the United Kingdom.

The following list of cumulative quarterly totals of instruments loaned and granted shows the increasing activity of this program:

June 30, 1956.....	17, 504
September 30, 1956.....	23, 934
December 31, 1956.....	29, 507
March 31, 1957.....	33, 576
June 30, 1957.....	35, 330

* Two hospitals.

** Three hospitals.

RADIOLOGICAL INSTRUMENTS

Loaned or Granted to States

<i>Region 1</i>	<i>Number of instruments</i>	<i>Region 5</i>	<i>Number of instruments</i>
Connecticut.....	1,081	Arkansas.....	206
Maine.....	1,704	Louisiana.....	111
Massachusetts.....	3,564	New Mexico.....	134
New Hampshire.....	641	Oklahoma.....	310
New Jersey.....	1,789	Texas.....	372
New York.....	4,114		
Rhode Island.....	354	<i>Region 6</i>	
Vermont.....	298	Colorado.....	229
		Iowa.....	26
<i>Region 2</i>		Kansas.....	198
Delaware.....	197	Minnesota.....	2,037
District of Columbia.....	93	Nebraska.....	608
Kentucky.....	285	North Dakota.....	83
Maryland.....	680	South Dakota.....	50
Ohio.....	2,869	Wyoming.....	179
Pennsylvania.....	518		
Virginia.....	194	<i>Region 7</i>	
West Virginia.....	19	Arizona.....	341
		California.....	1,966
<i>Region 3</i>		Idaho.....	486
Alabama.....	420	Montana.....	5
Florida.....	111	Nevada.....	25
Georgia.....	1,081	Oregon.....	504
Mississippi.....	359	Utah.....	368
North Carolina.....	366	Washington.....	92
South Carolina.....	48		
Tennessee.....		<i>Territories and possessions</i>	
		Alaska.....	
<i>Region 4</i>		American Samoa.....	
Illinois.....	2,568	Canal Zone.....	48
Indiana.....	131	Guam.....	
Michigan.....	629	Hawaii.....	72
Missouri.....	2,459	Puerto Rico.....	8
Wisconsin.....	268	Virgin Islands.....	2

WAREHOUSING

Most FCDA stockpiled supplies are located in 43 warehouses in the United States. Some engineering supplies, however, are stored at 21 other locations, and small quantities of FCDA supplies are stored in 4 warehouses in Hawaii, Puerto Rico, and Alaska. In addition, substantial quantities of vaccines and antibiotics are stockpiled in storage facilities of the manufacturers.

The 43 primary warehouses represent more than 2,340,000 square feet of usable storage space. At the end of the fiscal year about 73 percent of the space was filled. The warehouses consist of 3 general reserve warehouses at Somerville, N. J.; Clearfield, Utah, and an

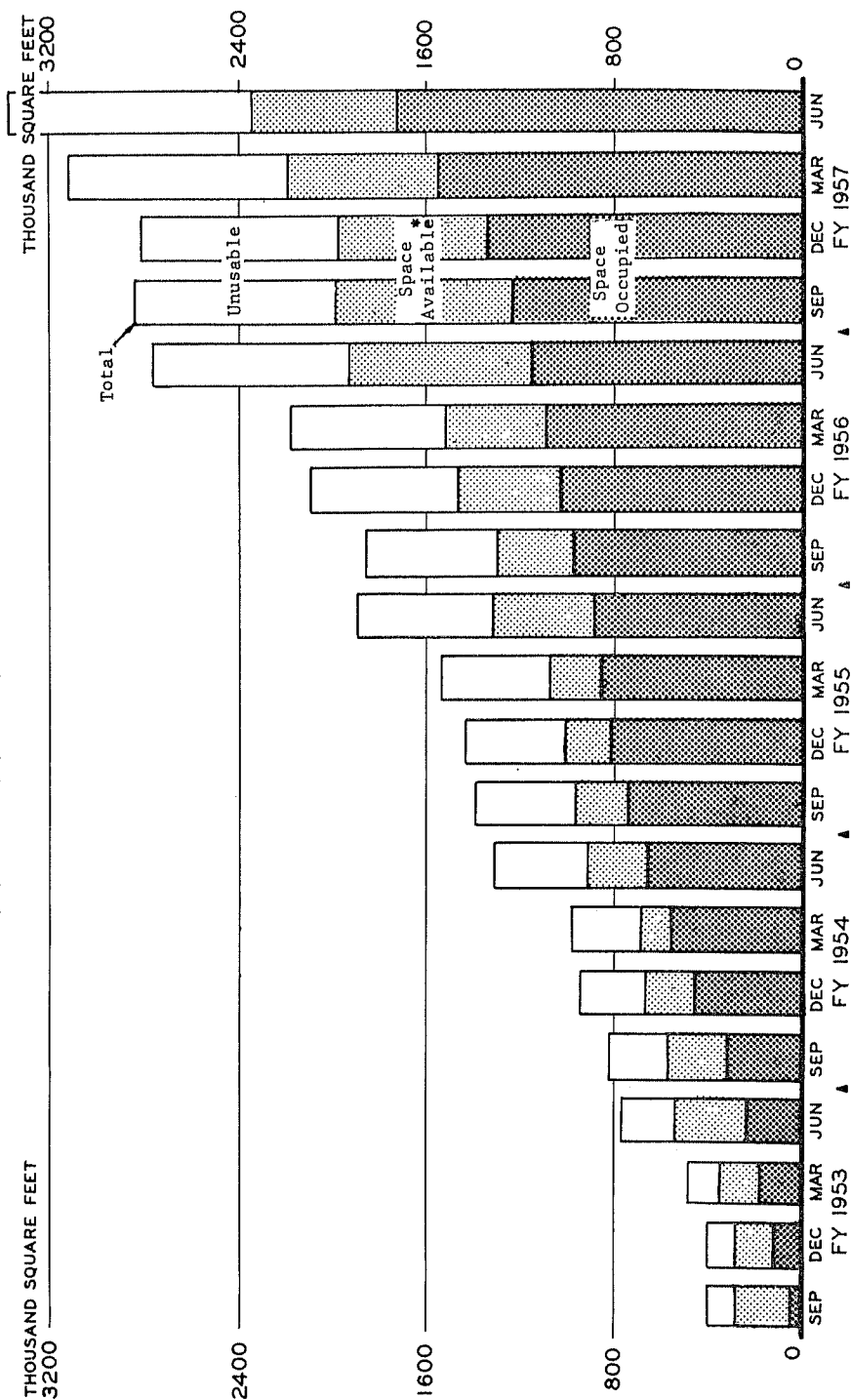
underground facility at Neosho, Mo.; 32 major and 8 minor storage locations.

During the fiscal year, FCDA activated 1 new general reserve storage location, and 9 major warehouses. Three major warehouses were inactivated, and 2 major warehouses were redesignated as general reserve warehouses.

PRIMARY STORAGE SITES

Warehouse locations		Usable warehouse space (square feet)	
		<i>Total</i>	<i>Occupied</i>
TOTAL (all regions)-----	2, 343, 041		1, 707, 860
<i>Region 1</i> -----	588, 781		535, 586
Belle Mead, N. J.-----	6, 812		5, 812
Ellenville, N. Y.-----	19, 085		18, 868
Gilbertville, Mass-----	83, 109		82, 982
Horseheads, N. Y.-----	27, 594		26, 591
Romulus, N. Y.-----	130, 208		97, 153
Somerville, N. J.-----	322, 000		304, 180
<i>Region 2</i> -----	553, 690		393, 045
Columbus, Ohio-----	41, 929		5, 877
Lebanon, Pa.-----	54, 543		1, 511
Lexington, Ky-----	8, 271		5, 009
Marion, Ohio-----	40, 473		20, 971
Mechanicsburg, Pa-----	83, 585		83, 585
Montoursville, Pa-----	31, 187		13, 172
New Castle, Pa-----	71, 777		65, 947
New Cumberland, Pa-----	15, 433		13, 333
Richmond, Va-----	9, 971		4, 962
Shamokin, Pa-----	34, 110		34, 110
Tobyhanna, Pa-----	7, 076		2, 100
Williamsburg, Va-----	92, 800		81, 947
Zanesville, Ohio-----	62, 535		60, 521
<i>Region 3</i> -----	83, 910		74, 502
Anniston, Ala-----	42, 585		36, 900
Atlanta, Ga-----	8, 000		4, 277
Rockwood, Tenn-----	33, 325		33, 325
<i>Region 4</i> -----	499, 712		332, 203
Bremen, Ind-----	59, 430		54, 780
Crab Orchard, Ill-----	42, 553		40, 074
Decatur, Ill-----	14, 230		5, 725
Granite City, Ill-----	17, 557		
Jeffersonville, Ind-----	33, 813		23, 150
Marshall, Mich-----	57, 322		50, 873
Neosho, Mo-----	91, 000		1, 700
Seneca, Ill-----	82, 912		67, 150
Springfield, Mo-----	100, 895		88, 751
<i>Region 5</i> -----	89, 536		75, 182
Bastrop, Tex-----	58, 041		45, 587
Lake Charles, La-----	31, 495		29, 595
<i>Region 6</i> -----	98, 709		75, 481
Hampton, Iowa-----	57, 328		36, 792
Sidney, Nebr-----	41, 381		38, 689
<i>Region 7</i> -----	428, 703		321, 861
Clearfield, Utah-----	134, 800		49, 200
Lathrop, Calif-----	75, 333		38, 394
Mira Loma, Calif-----	50, 833		16, 458
San Jose, Calif-----	64, 612		42, 751
Spokane, Wash-----	32, 700		27, 882
Stockton, Calif-----	28, 341		17, 105
Tacoma, Wash-----	10, 784		3, 971
Yakima, Wash-----	31, 300		26, 100

FIGURE 8- TREND IN FCDA WAREHOUSING SPACE



SURPLUS PROPERTY

Federal surplus property became available for civil defense purposes in July 1956, when an amendment to the Federal Property and Administrative Services Act was approved (Public Law 655, 84th Congress, Second Session).

In September 1956, FCDA delegated the administrative operation of the civil defense surplus property program to the Department of Health, Education, and Welfare. FCDA retained responsibility for establishing policy for the program, including determining the items considered suitable and usable for civil defense, and issuing regulations on the issue and use of the property. FCDA established procedures to supervise these functions through its regional administrators, who coordinated the program in close cooperation with State civil defense directors.

Reports at the end of the fiscal year indicated surplus property, which originally cost nearly \$4 million, had been donated to the States for civil defense purposes. That figure was based on reports from 35 States. FCDA expected later reports to show an increase from \$4 million to about \$7 million for fiscal year 1957.

Operating costs for the program totaled \$111,614 in fiscal year 1957, including \$81,669 spent by the Department of Health, Education, and Welfare under its delegation, and \$29,945 by FCDA.

Federal surplus property is transferred to the State agency designated by State law as responsible for receiving and distributing all surplus property within the State. These State agencies are required to submit operating plans to the Department of Health, Education, and Welfare for review and approval before they can receive surplus property for civil defense purposes. At the end of the fiscal year, the operating plans of 47 States and 2 Territories had been approved.

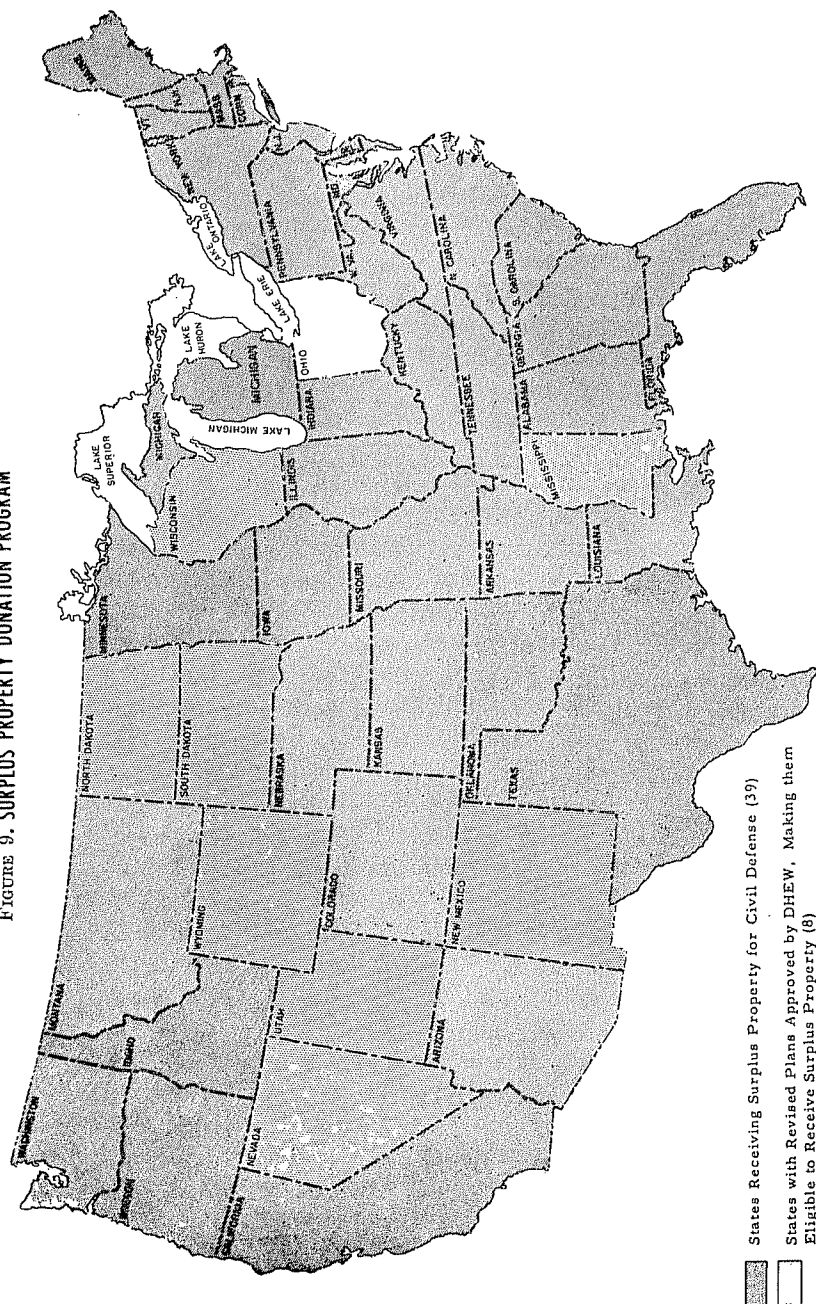
The State also must sign a memorandum of understanding with the appropriate FCDA regional administrator. This memorandum covers compliance with program regulations, as well as the care, use, maintenance, and disposal of the donated property. At the end of the fiscal year, 37 States, Puerto Rico, Virgin Islands, Alaska, and Hawaii had signed memoranda of understanding.

Reports from 35 States showed that the number of transactions and the original value of surplus property made available to civil defense during the fiscal year were as follows:

SURPLUS PROPERTY RECEIVED BY STATES

States	Number of trans- actions	Original acquisi- tion cost
<i>TOTAL</i> -----	2, 349	\$2, 958, 410
<i>Region 1</i> -----	283	543, 417
Connecticut-----	70	43, 407
Maine-----	6	29, 382
Massachusetts-----	106	305, 599
New Hampshire-----	85	85, 609
New Jersey-----	1	8, 698
Rhode Island-----	1	1, 420
Vermont-----	14	69, 302
<i>Region 2</i> -----	746	487, 587
Delaware-----	27	13, 133
Kentucky-----	13	48, 847
Maryland-----	39	35, 271
Pennsylvania-----	632	335, 077
Virginia-----	32	45, 321
West Virginia-----	3	9, 938
<i>Region 3</i> -----	463	1, 035, 233
Alabama-----	149	385, 366
Florida-----	33	146, 285
Georgia-----	59	120, 437
North Carolina-----	205	304, 379
South Carolina-----	5	5, 223
Tennessee-----	12	73, 543
<i>Region 4</i> -----	422	814, 353
Illinois-----	259	582, 951
Indiana-----	49	73, 320
Michigan-----	98	144, 725
Missouri-----	16	13, 357
<i>Region 5</i> -----	255	684, 382
Arkansas-----	82	347, 865
Louisiana-----	48	176, 317
Oklahoma-----	6	5, 017
Texas-----	119	155, 183
<i>Region 6</i> -----	142	323, 877
Colorado-----	39	98, 159
Iowa-----	2	386
Kansas-----	15	80, 538
Minnesota-----	58	119, 170
Nebraska-----	28	25, 624
<i>Region 7</i> -----	38	69, 561
Arizona-----	8	33, 486
Oregon-----	13	18, 038
Washington-----	17	18, 037

FIGURE 9. SURPLUS PROPERTY DONATION PROGRAM



FEDERAL CONTRIBUTIONS PROGRAM

The objective of the Federal Contributions Program is to assist the States to develop adequately trained and equipped organizations to minimize loss of life and property in the event of enemy attack. The program operates under the authority of the Federal Civil Defense Act of 1950 (Public Law 920, 81st Congress), which authorized financial contributions to the States for civil defense purposes on the basis of programs and projects approved by the FCDA administrator.

Federal contributions are made to the States on the basis of individual project applications approved by FCDA regional administrators. All States, Territories, and possessions, except Alaska, are required to match Federal funds on a 50-50 basis. The matching ratio for Alaska is 70 percent Federal and 30 percent local.

The program began operation in fiscal year 1952. Appropriations by Congress for the program from 1952 through 1955-56 totaled \$61,150,000. The 1956-57 appropriation was \$12,400,000, and the 1957-58 appropriation was \$17,000,000.

Recent appropriations for the contributions program have been made available for use during a 2-year period. The time for using the 1956-57 appropriation expired June 30, 1957. The unused portion of the 1957-58 appropriation is available until June 30, 1958.

Federal contributions or obligations under this program, from its inception through fiscal year 1957, amounted to \$65,362,736. At the end of fiscal year 1957, funds obligated from the 1957-58 appropriation totaled \$2,978,472.

Nearly 75 percent of the total Federal contributions went to States in FCDA Regions 1, 2, and 7. These are the regions with heavy concentrations of populations. New York, California, and Pennsylvania were the three States receiving the largest amounts of Federal funds. During fiscal year 1957, Federal funds were not allocated to the States in advance. FCDA regional administrators were authorized to approve project applications first from those States ready with funds and projects to move ahead.

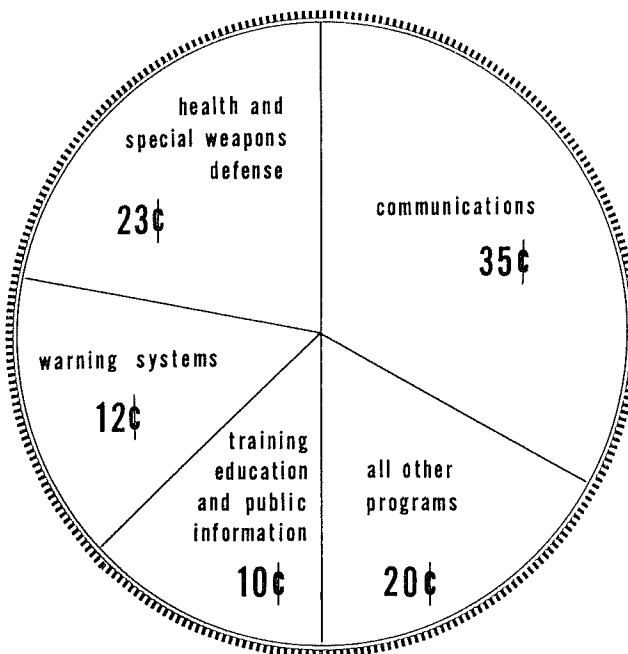
Federal funds contributed to the States, Territories, and possessions amounted to 38.4 cents per capita on a national average through June 30, 1957. An equal amount has been spent by the States and their political subdivisions.

In the early years of the program most Federal contribution funds were obligated for health and special weapons defense items. More recently, however, more money has been obligated for communication items.

FIGURE 10

FEDERAL CONTRIBUTIONS DOLLAR

(FY 1952-1958)



FEDERAL FUNDS OBLIGATED BY PROGRAM

(By fiscal year appropriation)

<i>Fiscal year</i>	<i>Total (fiscal year 1952-58)</i>	<i>1957-58</i>	<i>1956-57</i>
Warning device and voice sound system.....	\$7, 562, 989	\$293, 953	\$1, 256, 216
Communications.....	23, 158, 411	1, 704, 404	7, 200, 794
Police service.....	185, 220	47, 722	119, 762
Health and special weapons defense.....	15, 083, 827	121, 671	1, 668, 018
Control centers.....	8, 583	8, 583	-----
Engineering.....	890, 485	164, 413	471, 936
Fire service.....	8, 851, 285	-----	-----
Helicopter.....	101, 734	20, 838	80, 896
Public information.....	824, 034	69, 446	238, 489
Rescue service.....	2, 671, 641	150, 180	335, 972
Training and education.....	5, 588, 434	341, 959	706, 838
Welfare service.....	334, 137	55, 303	74, 207
Other services.....	101, 956	-----	20, 451

SUMMARY—ALL PROGRAMS

Dollar Value of Federal Funds Obligated (by fiscal year appropriation)

Region and State	Total 1952-58	1957-58	1956-57
<i>Total</i>	<i>65, 362, 736</i>	<i>2, 978, 472</i>	<i>12, 182, 579</i>
<i>Region 1</i>	<i>21, 240, 465</i>	<i>515, 793</i>	<i>4, 213, 966</i>
Connecticut	1, 667, 829	187, 876	405, 274
Maine	540, 025	25, 205	262, 427
Massachusetts	2, 668, 251	144, 683	612, 292
New Hampshire	185, 400	24, 815	49, 440
New Jersey	1, 905, 783	522	217, 572
New York	13, 762, 650	108, 457	2, 548, 345
Rhode Island	338, 420	15, 240	28, 602
Vermont	172, 107	8, 995	90, 014
<i>Region 2</i>	<i>15, 616, 125</i>	<i>675, 624</i>	<i>2, 746, 798</i>
Delaware	874, 558	19, 951	203, 386
District of Columbia	194, 490		2, 481
Kentucky	384, 236	55, 156	37, 940
Maryland	1, 583, 643	106, 766	320, 778
Ohio	4, 142, 055	154, 219	462, 678
Pennsylvania	7, 563, 064	306, 946	1, 599, 828
Virginia	794, 440	26, 648	82, 195
West Virginia	79, 639	5, 938	37, 512
<i>Region 3</i>	<i>4, 419, 004</i>	<i>629, 392</i>	<i>954, 749</i>
Alabama	614, 088	43, 094	102, 394
Florida	687, 368	52, 602	231, 412
Georgia	1, 238, 134	198, 899	259, 629
Mississippi	216, 905	3, 099	43, 111
North Carolina	633, 192	265, 072	185, 838
South Carolina	104, 307	9, 779	5, 837
Tennessee	925, 010	56, 847	126, 528
<i>Region 4</i>	<i>6, 621, 733</i>	<i>217, 016</i>	<i>1, 545, 029</i>
Illinois	1, 837, 154	68, 809	284, 449
Indiana	679, 316	22, 558	260, 957
Michigan	2, 191, 150	74, 550	662, 130
Missouri	1, 002, 741	13, 172	136, 433
Wisconsin	911, 372	37, 927	201, 060
<i>Region 5</i>	<i>3, 325, 317</i>	<i>304, 606</i>	<i>832, 305</i>
Arkansas	312, 404	22, 030	96, 858
Louisiana	686, 468	7, 522	165, 489
New Mexico	6, 501	560	5, 941
Oklahoma	672, 981	69, 020	158, 708
Texas	1, 646, 963	205, 474	405, 309
<i>Region 6</i>	<i>1, 975, 205</i>	<i>169, 948</i>	<i>296, 488</i>
Colorado	315, 908	8, 673	56, 250
Iowa	156, 308	11, 638	8, 307
Kansas	379, 758	40, 775	21, 572
Minnesota	758, 194	81, 591	142, 917
Nebraska	214, 144	7, 990	40, 775
North Dakota	26, 876	9, 964	8, 207
South Dakota	72, 108	9, 280	14, 121
Wyoming	51, 909	37	4, 339

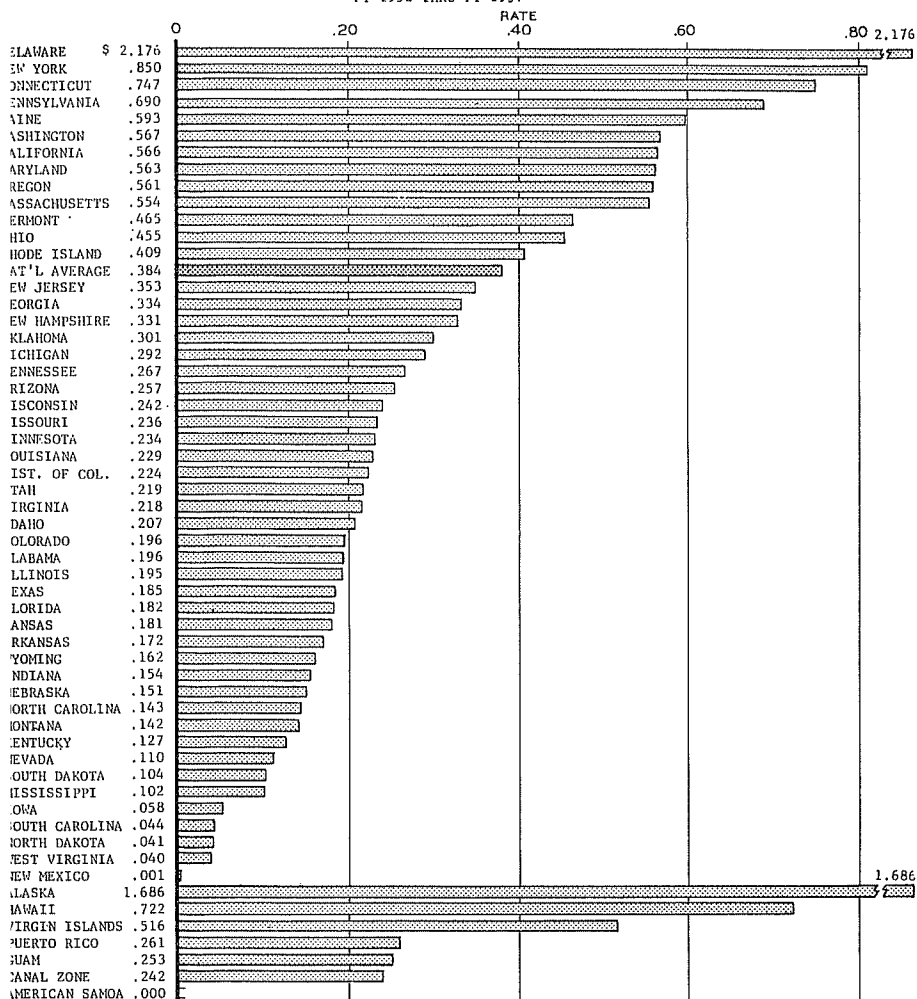
SUMMARY—ALL PROGRAMS—Continued

Dollar Value of Federal Funds Obligated (by fiscal year appropriation)—Continued

Region and State	Total 1952-58	1957-58	1956-57
<i>Region 7</i> -----	<i>10, 777, 874</i>	<i>369, 132</i>	<i>1, 457, 820</i>
Arizona-----	271, 161	3, 369	121, 757
California-----	7, 604, 439	159, 412	619, 746
Idaho-----	129, 656	8, 453	85, 323
Montana-----	90, 984	4, 123	11, 119
Nevada-----	27, 254	412	-----
Oregon-----	964, 399	41, 562	110, 641
Utah-----	177, 511	5, 536	47, 131
Washington-----	1, 512, 470	146, 265	462, 103
<i>Territories and possessions</i> -----	<i>1, 387, 013</i>	<i>96, 961</i>	<i>135, 424</i>
Alaska-----	352, 274	306	14, 332
American Samoa-----	-----	-----	-----
Canal Zone-----	12, 803	142	1, 158
Guam-----	14, 898	-----	-----
Hawaii-----	404, 356	21, 859	7, 099
Puerto Rico-----	590, 309	69, 950	107, 222
Virgin Islands-----	12, 373	4, 704	5, 613

FEDERAL FUNDS OBLIGATED PER CAPITA*

FY 1952 THRU FY 1957



* Based on total Federal Contributions, FY 1952 through June 30, 1957, and U. S. Bureau of the Census estimates of population as of July 1, 1956.

CIVIL DEFENSE IN THE STATES AND CITIES

SURVIVAL PLAN PROGRAM

Federally financed survival plan studies to develop State and local emergency operational plans were conducted in 35 States, Washington D. C., Hawaii, and Puerto Rico during fiscal year 1957.

The method of carrying out the program was revised by FCDA during the year in an attempt to speed the production of emergency operational plans. The original 4-phase program concept was telescoped into 2 basic stages: the preliminary operational survival plan, and the operational survival plan.

The preliminary operational survival plan (POSP) is an interim plan to be developed as rapidly as feasible, and used until the more comprehensive plan for emergency operations—the operational survival plan (OSP)—is completed.

During fiscal year 1957, 39 POSP contracts and 15 OSP contracts were signed.

POSP contracts were signed with the following States and cities: Region I—Connecticut, Maine, Massachusetts, New Hampshire, New York State, Rhode Island, Vermont, New York City, and Trenton, N. J. Region II—Kentucky, Maryland, Ohio, Virginia, West Virginia, Washington, D. C., and Philadelphia, Pa. Region III—Alabama, Florida, Georgia, Mississippi, North Carolina, Tennessee, and Puerto Rico. Region IV—Wisconsin, Illinois, and St. Louis and Kansas City, Mo. Region V—Arkansas, Louisiana, Oklahoma, and New Orleans, La. (a POSP contract was signed with Houston, Tex. in fiscal year 1956). Region VI—Colorado, Kansas, Minnesota, Nebraska, North Dakota, and South Dakota. Region VII—Arizona and Oregon.

OSP contracts were signed with the following States: Region I—Connecticut, Maine, Massachusetts, and Rhode Island. Region II—Ohio. Region III—Florida, Mississippi, North Carolina, and Tennessee. Region IV—Illinois and Missouri. Region V—Louisiana. Region VI—Colorado and Nebraska. Region VII—Hawaii.

At the end of the fiscal year, Federal funds totaling \$7,713,278 had been obligated by FCDA in the States and cities under contract.

In the early stages of the program some States and cities subcontracted portions of the work to private research organizations. But FCDA required that the plans be developed directly by project staffs in the States and cities. At the end of the fiscal year all work was being carried out in this manner. The requirement was aimed at

building competence in civil defense staffs at the State and local level. By virtue of their experience in developing the plans these people would be capable of advising government officials responsible for implementing and directing emergency operations.

Guidance to State and local project staffs, totaling 1,034 employees throughout the Nation, was provided by periodic visits of FCDA regional survival project personnel and selected Headquarters staff members. Additional assistance was provided by the publication and distribution to survival project staffs of guidance material, and by national conferences of survival project directors and State civil defense directors at FCDA Headquarters in September and March.

STATE AND LOCAL EXPENDITURES

A special annual survey made for FCDA by the Bureau of the Census shows that State governments spent \$17,168,000 for civil defense in fiscal year 1956.³ Forty-one cities of 250,000 population or more spent \$6,812,000. These totals represent a slight decrease from the previous fiscal year when State governments spent \$17,346,000 and the 41 major cities spent \$7,407,000. The totals do not include expenditures for peacetime disaster relief activities, even where those activities are administered by a civil defense organization.

STATE EXPENDITURES FOR CIVIL DEFENSE, FISCAL YEARS, 1951-56* (Thousand Dollars)

FCDA Region and State	Total	1956	1955	1954	1951-53
<i>U. S. Total</i>	<i>83, 034</i>	<i>17, 168</i>	<i>17, 346</i>	<i>20, 750</i>	<i>27, 770</i>
<i>Region 1</i>	<i>28, 908</i>	<i>6, 519</i>	<i>6, 082</i>	<i>7, 215</i>	<i>9, 092</i>
Connecticut.....	1, 850	491	265	260	834
Maine.....	726	260	161	89	216
Massachusetts.....	3, 416	623	323	1, 380	1, 090
New Hampshire.....	271	41	49	63	118
New Jersey.....	2, 473	581	290	454	1, 148
New York.....	19, 705	4, 429	4, 888	4, 878	5, 510
Rhode Island.....	277	48	59	58	112
Vermont.....	190	46	47	33	64
<i>Region 2</i>	<i>15, 069</i>	<i>3, 773</i>	<i>3, 605</i>	<i>4, 113</i>	<i>3, 578</i>
Delaware.....	641	261	65	127	188
Kentucky.....	182	33	76	27	46
Maryland.....	2, 103	521	382	545	655
Ohio.....	5, 975	1, 544	1, 199	1, 596	1, 636
Pennsylvania.....	5, 307	1, 112	1, 803	1, 526	866
Virginia.....	742	275	54	266	147
West Virginia.....	119	27	26	26	40

³ Latest available statistics.

*These expenditures include funds received from the Federal Government (about 38 percent of the total). Source: United States Bureau of the Census.

STATE EXPENDITURES FOR CIVIL DEFENSE, FISCAL YEARS
1951-56*—Continued

(Thousand Dollars)

FCDA region and State	Total	1956	1955	1954	1951-53
<i>Region 3</i>	4, 135	1, 086	979	825	1, 245
Alabama	631	117	**115	**180	**219
Florida	608	112	296	35	165
Georgia	1, 553	457	396	325	375
Mississippi	172	90	41	30	11
North Carolina	291	127	44	32	88
South Carolina	66	13	14	13	26
Tennessee	814	170	73	210	361
<i>Region 4</i>	8, 705	1, 123	1, 635	1, 999	3, 948
Illinois	1, 634	294	487	557	296
Indiana	576	114	215	79	168
Michigan	4, 915	407	640	808	3, 060
Missouri	1, 130	225	170	395	340
Wisconsin	450	83	123	160	84
<i>Region 5</i>	3, 311	1, 215	1, 005	389	702
Arkansas	112	81	30	-----	1
Louisiana	952	173	189	178	412
New Mexico	87	87	-----	-----	-----
Oklahoma	716	268	168	133	147
Texas	1, 444	606	**618	**78	**142
<i>Region 6</i>	3, 924	565	438	562	2, 359
Colorado	654	128	141	127	258
Iowa	98	27	21	18	32
Kansas	1, 284	34	25	19	1, 206
Minnesota	1, 522	292	184	329	717
Nebraska	114	18	12	23	61
North Dakota	48	15	10	9	14
South Dakota	110	31	17	17	45
Wyoming	94	20	28	20	26
<i>Region 7</i>	18, 982	2, 887	3, 602	5, 647	6, 846
Arizona	208	19	40	53	96
California	15, 738	2, 062	3, 013	4, 961	5, 702
Idaho	94	56	-----	5	33
Montana	171	53	40	37	41
Nevada	49	14	-----	12	23
Oregon	1, 228	454	252	260	262
Utah	216	26	51	41	98
Washington	1, 278	203	206	278	591

*These expenditures include funds received from the Federal Government (about 38 percent of the total). Source: United States Bureau of the Census.

**Revised.

CIVIL DEFENSE EXPENDITURES OF MAJOR CITIES,
FISCAL YEARS 1951-56
(Thousand Dollars)

City	Total	Fiscal year 1956	Fiscal year 1955	Fiscal year 1954	Fiscal year 1951-53
<i>Total (41 cities)-----</i>	<i>34, 613</i>	<i>6, 812</i>	<i>7, 407</i>	<i>6, 391</i>	<i>14, 008</i>
<i>1,000,000 or more inhabitants:</i>					
New York-----	10, 861	1, 603	2, 194	1, 882	5, 182
Chicago-----	974	281	228	235	230
Philadelphia-----	1, 482	192	204	424	662
Los Angeles-----	1, 335	603	175	270	287
Detroit-----	2, 265	552	646	500	567
<i>500,000 to 1,000,000 inhabitants:</i>					
Baltimore-----	1, 745	498	386	316	545
Cleveland-----	1, 100	76	120	228	676
St. Louis-----	559	111	95	88	265
Washington, D. C.-----	1, 028	78	189	174	587
Boston-----	1, 034	104	74	123	733
San Francisco-----	1, 549	304	313	270	662
Pittsburgh-----	153	17	19	75	42
Milwaukee-----	931	209	191	162	369
Houston-----	448	86	85	97	180
Buffalo-----	*1, 232	*342	*890		
New Orleans-----	464	79	89	131	165
Minneapolis-----	298	85	91	41	81
Cincinnati-----	190	138	52		
<i>250,000 to 500,000 inhabitants:</i>					
Seattle-----	683	64	73	188	358
Kansas City, Mo-----	210	27	26	64	93
Newark-----	703	98	152	152	301
Dallas-----	49	16	18	11	4
Indianapolis-----	160	42	16	31	71
Denver-----	361	88	60	26	187
San Antonio-----	116	15	49	8	44
Memphis-----	172	44	37	18	73
Oakland-----	704	63	60	147	434
Columbus-----	*278	*53	*42	36	147
Portland, Oreg-----	661	350	134	106	71
Louisville-----	128	10	18	62	38
San Diego-----	588	97	142	218	131
Rochester-----	*579	*154	*185	30	210
Atlanta-----	190	37	44	25	84
Birmingham-----	193	45	74	13	61
St. Paul-----	230	39	37	48	106
Toledo-----	306	57	59	83	107
Jersey City-----	126	15	22	22	67
Forth Worth-----	167	26	25	37	79
Akron-----	*62	*20	*20	18	4
Omaha-----	*189	*75	*53	19	42
Long Beach-----	110	19	20	13	58

*Includes expenditures by county government for the years noted. Source: United States Bureau of the Census.

INTERSTATE CIVIL DEFENSE COMPACTS

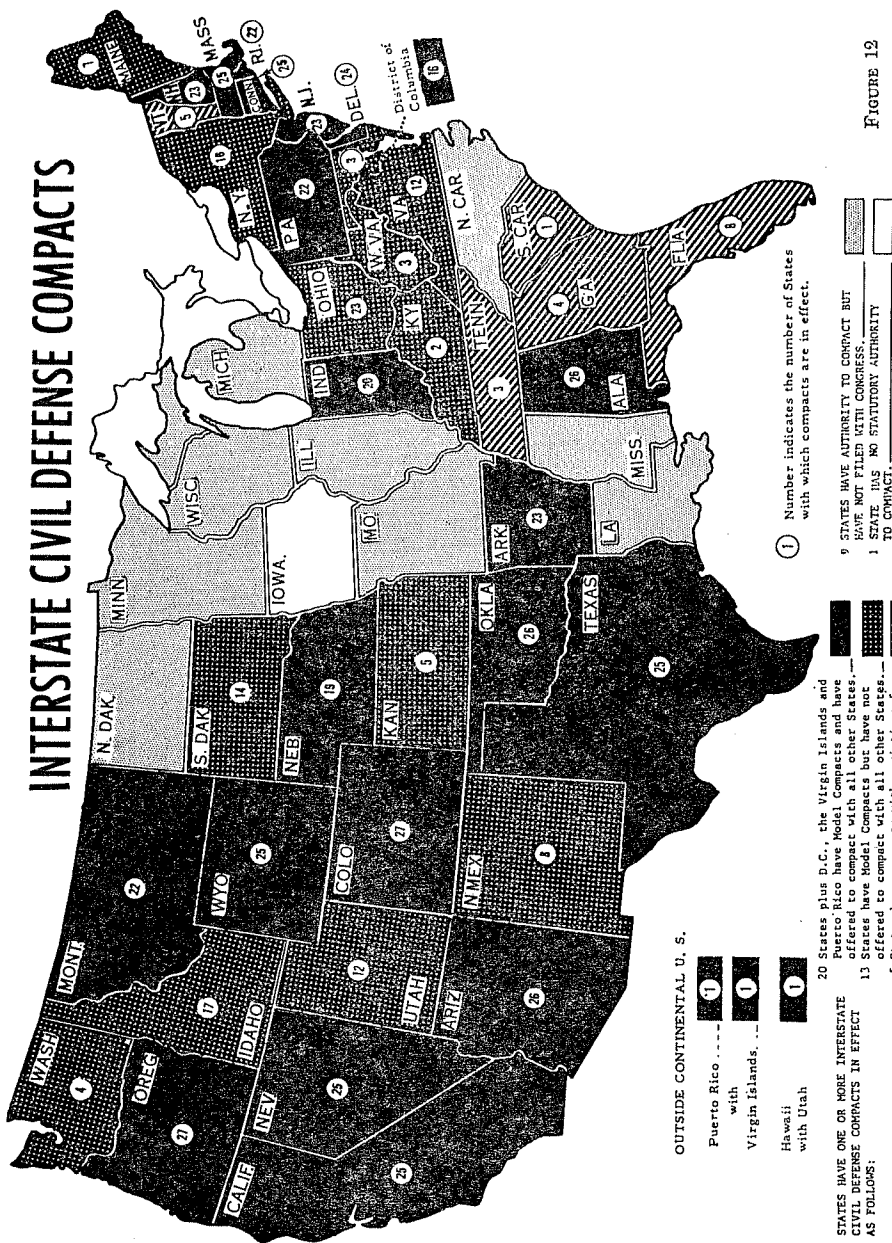


FIGURE 12

Note: The Kansas Attorney General has ruled that Kansas compacts are invalid.

Bureau of the Census surveys show there are more than 5 million State and local government employees. This total constitutes a key reservoir of personnel for carrying out emergency operations. Of that total, more than 2,500 are full-time civil defense staff members. About 800 are employed by State governments, and over 1,700 employed by municipal and county governments. The three States reported to have the largest full-time civil defense staffs are New York, 207; California, 98, and Massachusetts, 92.

At the end of the fiscal year at least 42 States, Washington, D. C., and 3 of the Territories and Possessions had civil defense advisory councils or committees to help shape civil defense planning and policy.

Thirty-eight States, Washington, D. C., Hawaii, the Virgin Islands, and Puerto Rico had at least 1 interstate civil defense compact in effect at the end of fiscal year 1957. Of that total, 22 States had compacts with 16 or more States. The compacts provided a broad base of legal authority for joint civil defense action by 2 or more States.

More than 1,100 State and local training exercises, involving well over one-half million participants, were held during the fiscal year.

